Engineering and Physical Sciences
Research Council

ANNUAL REPORT AND ACCOUNTS
2010 - 2011

EPSRC
Pioneering research
and skills

ENGINEERING AND PHYSICAL SCIENCES RESEARCH COUNCIL
ANNUAL REPORT AND ACCOUNTS 2010-2011

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Pioneering research and skills

INVESTORS IN PEOPLE | Bronze

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PIONEERING THE FUTURE
JOHN ARMITT CHAIRMAN

In accordance with Schedule 1 to the Science and Technology Act 1965, the Engineering and Physical Sciences Research Council submits the following report on its activities for the period 01 April 2010 to 31 March 2011.

The UK research base remains at the heart of world-leading advances in engineering and physical sciences. This year we invested over £800 million in pioneering research and training to help meet the many global challenges facing the UK: an ageing population; the need for low-carbon energy alternatives; global security threats; the impact of climate change; the urgent need for new sustainable manufacturing technologies.

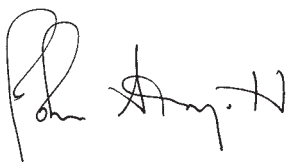
Manufacturing is a key part of our strategy and this year we strengthened our portfolio with a £45 million investment in new EPSRC Centres for Innovative Manufacturing. These centres will work with leading manufacturers to help generate new ideas and mould-breaking technologies to fuel growth, open up exciting new markets and create employment opportunities. This investment also reflects our commitment to PhD training in centres of international research excellence.

To support these investments we have brokered multidisciplinary partnerships across academia, business, government and other stakeholders, which in total has generated £131 million in additional funding; ensuring our best scientists and engineers have the resources and opportunities they need to fully realise and accelerate the impact of their research.

Evidence of the quality of our portfolio came from the influential magazine *The Engineer* in its 2010 Technology & Innovation Awards, when collaborative engineering projects co-funded and/or inspired by EPSRC research won six out of a possible ten categories with projects ranging from organic LED technology to radar-generated CCTV systems and sports technology.

Following the publication of our Strategic Plan, which introduced our goals of Delivering Impact, Shaping Capability and Developing Leaders, we have now published our Delivery Plan for 2011-15, through which we are committed to playing a more proactive role in shaping our research and training portfolio. We will be moving progressively from being a funder of research and training to a sponsor, where our investments act as a national resource focused on outcomes for national good. This transformational leadership approach will condition everything we do and the way we work with our community and other key partners and stakeholders leading to deepening relationships, mutual trust and greater understanding.

In an era of austerity, it is especially important for EPSRC and the scientists and engineers it supports to maximise the return from the public's investment. I am confident that together we can meet this challenge and help forge a bright future for the UK and its people.



John Armitt Chairman

DELIVERING GREATER IMPACT
DAVID DELPY CHIEF EXECUTIVE

7,300

This year we suppported over 7,300 researchers.

This year marks the end of our 2008-11 Delivery Plan period. The achievements over the past three years will position us to meet our ambitious agenda as we embark on our new Delivery Plan. This report provides a snapshot of some of the highlights for 2010/11 and also outlines some of our key achievements during the Delivery Plan period as a whole.

This year we supported over 7,300 researchers through 5,847 grants and funded a population of over 10,000 PhD students as part of our commitment to long-term investment in discovery and challenge-led research.

If proof were needed of this commitment we need look no further than Professor Andre Geim and Dr Konstantin Novoselov, of the University of Manchester, who were awarded the 2010 Nobel Prize for Physics for their discovery and subsequent research into graphene. This extraordinary material is just one atom thick yet stronger than steel and considered a superior alternative to silicon, the main component of microchips. EPSRC-funded support for Professor Geim's research began in 2001, and led to the discovery of graphene three years later. In 2009 we awarded a further £5 million to Professor Geim and his team to further their research into graphene.

We continue to support visionary leaders through awards such as our flagship Programme Grants, which enable world-leading research groups to carry out projects with the potential for ground-breaking impact on society and our economy. This year we invested over £82 million in 19 Programme Grants across a range of disciplines – from photonics to nano-scale technologies. We also awarded EPSRC Fellowships worth £39 million to 46 outstanding individuals with the potential to profoundly influence the research landscape.

This year we continued to support and train the most talented and forward-thinking early career researchers, investing in the next generation of scientists and engineers. Among a range of initiatives. The opening of several new Centres for Doctoral Training (CDTs), focused on computer science and communications, bringing the total to 63 at 26 universities.

These centres support students in four-year cohorts in highly innovative, research-excellent environments where both depth and breadth are championed. Students trained in this way are much sought-after by business and academia for their quality, productivity, and employability. CDTs provide PhD students with access to the finest academic teaching within university-based centres of excellence. They also maximise the flexibility of EPSRC Doctoral Training Grants – four-year awards made to universities based on research grant income.

We have continued to broker relationships between business and universities through five new EPSRC Industrial Doctorate Centres, which provide the same training environment as CDTs but with a strong industrial focus, leading to an engineering doctorate. These centres focus on developing future business leaders in key areas of advanced manufacturing, ranging from aerospace and the automotive industry to sustainable energy solutions.

To protect the quality of PhD training, this year we ceased our support of project studentships on research grants. This will afford some protection to other priority routes for supporting studentships, including CDTs, and will enable us to focus on consistently high-quality training within centres of excellence and with proven benefits for all. Part of this strategy involves focusing more support in key strategic areas, such as manufacturing, through initiatives like Industrial CASE awards, where businesses take the lead in arranging projects for PhD studentships with an academic partner of their choice. This year we made 57 further Industrial CASE awards.

In the vital area of manufacturing, we invested £45 million in nine new EPSRC Centres for Innovative Manufacturing, bringing the total number of Centres to 12. Here industry partners and academic leaders are undertaking cutting-edge research in areas such as biological pharmaceuticals, composite technologies and intelligent automation to address major manufacturing challenges and meet new market opportunities. In tandem, we launched a £6 million programme of EPSRC Manufacturing Fellowships, focused on fast-tracking future research leaders.

Partnerships for growth

Our manufacturing initiatives are part of a wider collaboration with businesses, charities, government and other bodies such as the Technology Strategy Board (TSB). We now have 2,300 organisations collaborating on grants across a range of disciplines including the priority research areas of energy, digital economy and next-generation healthcare. We have continued

£280 million

Our joint commitments with TSB now stand at around £280 million.

to work closely with existing strategic partners, including Rolls-Royce, GlaxoSmithKline and the MoD to deepen our existing partnerships in order to maximise the value we and our partners gain from the arrangement. Our aim, as we move into a new Delivery Plan period, is to focus on building a small number of new partnerships in strategically important gap areas.

Our relationship with the TSB is crucial, enabling us to harness its expertise in industry-led innovation and skills creation. Recent joint investments include £10 million in low-carbon vehicle projects, and £8.4 million in plastic electronics technologies. This year, we have also jointly invested in two Innovation and Knowledge Centres, which combine business knowledge with the most up-to-date research. Our joint commitments now stand at around £280 million.

Stretching creativity

Excellent research requires outstanding and creative thinking, and this year our 'Creativity@home' pilot, which pioneered new ways for researchers to develop creative problem-solving techniques, proved a hit with researchers at all stages of their careers. We are now offering this opportunity to Programme Grant holders and exploring how we might apply Creativity@home to our other strategic investments.

To provide some of our most gifted early career researchers with resources to match their potential, we awarded £1 million each to ten outstanding individuals. Our Challenging Engineering Awards enable them to hand-pick teams for leading-edge research projects ranging from medical imaging to carbon capture.

This year also saw the conclusion of our five-year programme of Science and Innovation Awards, that have led to some major breakthroughs in strategically important research areas including synthetic photosynthesis, synthetic biology and ultracold atom research, as well as the creation of centres of excellence in some of the most challenging research fields.

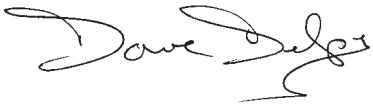
Commercial spin-out companies from EPSRC-funded research continue to thrive at the business end of the innovation chain. Success stories include ApaTech, a world-leader in bone graft technologies, which was sold for $330 million in 2010 and Plastic Logic, which received a $700 million investment from Russian nanotechnology giant RUSNANO to build a production factory for next-generation plastic displays.

International benchmarking and independent feedback are essential for EPSRC, and this year we carried out international reviews in maths and energy, receiving a thumbs-up from the international energy community and a solid endorsement from mathematics. And a report on UK chemistry research by leading forecasting company Oxford Economics came to some stunning conclusions, stating that industries reliant on chemistry research contributed an astonishing £258 billion to the UK economy in 2007 – equivalent to one in every £5, or 21 percent of UK GDP.

As we enter a new Delivery Plan period, our strategy focuses on achieving high-efficiency, high-value impact in a resource-constrained environment while retaining our commitment to international research excellence and national need. This includes driving internal efficiencies through a 33 percent reduction in administration costs.

We are fortunate to be working with some of the most creative minds on the planet whose vision and aspirations know no frontiers. Let me remind you of some of the achievements of EPSRC-sponsored researchers this year.

A team in Swansea has become the first in the world to trap anti-hydrogen – a major step towards the discovery of elusive dark matter. Researchers in Scotland are one step closer to creating a Star Trek-style invisibility cloak, with a new form of 'metamaterial'. And in Manchester, a team has been rewarded for its discovery of an extraordinary material which can conduct electrons at speeds very close to the speed of light – with potential far-reaching consequences for electronics and other technologies. That team is run by Nobel laureate Professor Andre Geim, and the material is graphene.



David Delpy Chief Executive

SUMMARY OF ACHIEVEMENTS

The UK has an enviable reputation in many areas of engineering and physical sciences research, reflecting the talented individuals we have supported and the high-quality work that they do. As well as the intrinsic value of improving our understanding of the world, investment in engineering and physical sciences research directly supports economic growth, provides people with advanced skills, and drives the delivery of key government objectives in many areas of national infrastructure including energy, transport and digital communications. For example a study into the "**Economic Benefits of Chemistry Research to the UK**," published in 2010, found that one in every five pounds in the UK economy is dependent on developments in chemistry research, with industries reliant on chemistry contributing £258 billion to the UK economy in 2007. This represented an equivalent of 21 percent of UK GDP, with the industry supporting six million jobs and accounting for at least 15 percent of the UK's exported goods that attracted significant inward investment.

EPSRC's achievements throughout the 2008-11 Delivery Plan period have provided us with a firm foundation from which our three clear Strategic Plan 2010 goals of Shaping Capability, Delivering Impact and Developing Leaders will be delivered. We have continued to sponsor a broad science and engineering research base which will provide a major stimulus for rejuvenating the economy. We have enhanced the pace and effectiveness of transferring research outputs into application by users in industry, business and government, thus contributing to a prosperous, healthy and sustainable UK. A three year study[1] of over 7,000 journal articles has also shown that EPSRC-sponsored researchers achieve a higher than average citation rate compared to the UK and world baselines. This impressive rating reflects the influence that our researchers have, and also highlights how competitive EPSRC sponsored research is internationally.

Achievements and highlights from this Delivery Plan period include:

Shaping Capability

NOBEL PRIZE FOR PHYSICS

EPSRC researcher Professor Andre Geim and fellow Russian-born scientist Dr Konstantin Novoselov shared the 2010 Nobel Prize for Physics for their ground-breaking work on graphene. From the first grant of just over £500,000 in August 2001, which led to the discovery of graphene, to a grant of more than £5 million awarded in October 2009 to investigate the potential of the material, EPSRC has directly funded the research which has led to the 2010 Nobel Prize for Physics being awarded.

Professor Andre Geim and Dr Konstantin Novoselov.
Image credit: University of Manchester

- A significant investment of £805 million[2] (with £240 million invested in 2010/11) in a portfolio of **research base projects** which will help to sustain a strong research capability, which provides a firm foundation of excellence across a broad range of disciplines enabling us to rapidly respond to exciting research opportunities.

[1] EPSRC Citation Study 2009
[2] Funds committed to research base projects during the period 1 April 2008 to 31 March 2011

Professor Andrew Mills holding a food spoilage plastic film.

INTELLIGENT PLASTICS

Scientists at the University of Strathclyde have developed a product to help reduce the estimated 8.3 million tonnes[3] of household food that is wasted every year in the UK. EPSRC has co-funded research into developing an **'intelligent' plastic** indicator that will change colour when the food is about to lose its freshness. Fresh food emits a number of gases and hormones as part of the ripening process. The level of accumulated gas in a package provides a measure of the degree of ripening undergone by the packaged fresh produce. The gas and hormones will then react with an 'ink' in the packaging to change the colour and indicate when food had spoiled. The new packaging can help identify food that has been stored in broken or damaged packaging, has passed its best-before date or has been poorly refrigerated. Currently freshness indicators typically take the form of labels inserted in a package but these come at a significant cost. The Strathclyde team of researchers is looking to create a new type of indicator which is an integral part of the packaging, and so is far less expensive than traditional packaging.

- Investment in programmes focused on excellent **highly ambitious research** for the UK. By March 2011, we had invested approximately £83 million in Programme Grants, and nearly £13 million in Platform Grants and £120 million in Science and Innovation Awards that are supporting researchers in mould-breaking projects in strategically important areas including healthcare, super-fast computers, and synthetic molecular machines with vast potential for applications.

Silicon carbide device under an extreme test.

MOULD-BREAKING PROJECTS

Dr Mathias Kolle and colleagues at the University of Cambridge have discovered a way of mimicking the stunningly bright and beautiful colours found on the wings of tropical butterflies. The research, funded through an **EPSRC Programme Grant**, could have important applications in the security printing industry, helping to make bank notes and credit cards harder to forge.

With funding from an **EPSRC Platform Grant**, researchers at Newcastle University are conducting leading research to develop wireless sensors that can withstand the very high temperatures of hostile environments such as nuclear power plants. The team is working on radiation and gas detectors that can operate at temperatures of several hundred degrees using electronics made from silicon carbide. The team has developed the necessary components and are currently integrating them into a device the size of a mobile telephone that could be used in a variety of locations such as power plants and even volcanoes.

- In 2010/11, we invested a further £13 million to ensure that researchers have **access to the best facilities**. In 2007 EPSRC led on the procurement of HECToR — the most advanced high-end computing facility in the UK. HECToR (also supported by NERC and BBSRC) has been used by hundreds of researchers from across all disciplines.

[3] http://www.wrap.org.uk/downloads/Household_food_and_drink_waste_in_the_UK_-_report.fc79bbff.8048.pdf

HIGH-END COMPUTING

HECToR has played a key role in climate modelling that has become increasingly important as scientists attempt to obtain more accurate forecasts about the possible consequences of global climate change. The accuracy of the computer simulations of global weather patterns carried out using the £113 million super-computer have proved crucial to a consortium of UK research groups attempting to simulate the global environment in more detail than has been possible in the past.

- Recognising the value that comes from linking the best researchers worldwide, we have developed a portfolio of **international collaborations** with leading research groups in target countries where there are significant benefits to the UK for direct involvement. Over £640 million of EPSRC funds are currently invested in supporting research with international links – representing an increase of around 20 percent over last year. It encompasses nearly 1,000 projects focused mainly on collaborations with China, India, USA, Japan and Europe.

BUILDING LINKS WITH INDIA

With funding from EPSRC and the UK Science and Innovation Network in India, Dr Sri Subramanian from the Department of Computer Science at the University of Bristol has been leading a project examining the use of **interactive technology in school classrooms in India**. The project installed a multi-touch table in two schools in Delhi to explore how the interactive table helps widen student participation and improves outreach. The project's initial findings show that the tables encourage greater cooperation and communication between students, and provide evidence to show that activity-based learning can raise attainment. Dr Subramanian's team plans to expand the scope of this initial investigation by introducing the interactive tables in more classrooms in India and in the UK.

Children from a school in Delhi working with the interactive table.

- The health of EPSRC research disciplines is assessed through **international reviews**. EPSRC has sustained its rigorous evaluation of the areas within its remit using teams of international experts. Following on from successful reviews of chemistry and e-Science, EPSRC convened panels of internationally-leading experts to benchmark the strength of the **UK energy and mathematical research programmes** against those found across the world and to highlight any gaps or missed opportunities.

Delivering Impact

- This year, we made a £45 million investment in a further nine EPSRC Centres for Innovative Manufacturing. The centres will focus on areas of pioneering research that promise to strengthen the UK's international standing and spearhead the creation of new industries and new employment opportunities in the UK. Each centre will receive five years' funding to retain staff, develop collaborations, carry out feasibility studies and support up to two research projects. EPSRC support will be used as a platform from which the centres can secure further investment from industry and other funders. These new centres follow on from the success of the EPSRC-sponsored Innovative Manufacturing Research Centres.

NEW WELDING TECHNIQUES

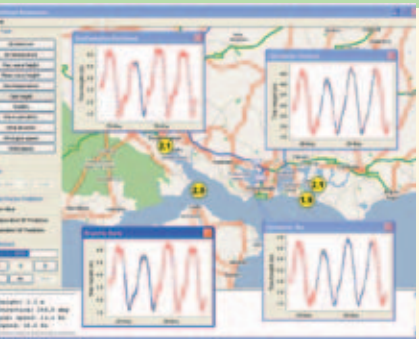
A welding technique for manufacturing **horizontal and inclined structures** developed by researchers at the Cranfield Innovative Manufacturing Research Centre has radically improved weld-based manufacturing practices without the need for additional tooling or any type of fixtures. The process also produces no waste materials. The Ready-to-use Additive Manufacturing (RUAM) project attracted 21 industry partners including Airbus, Doncasters and Bombardier.

- As part of its excellence with impact agenda, EPSRC has developed and maintained strategic partnerships with a range of industries from large aerospace/defence companies (e.g. Airbus, BAE Systems) through those in energy (e.g. E.ON UK), home and personal care (Procter & Gamble) and pharmaceuticals (GlaxoSmithKline, Pfizer, AstraZeneca). These partnerships provide a framework for sharing information and strategy, working together to support each other's objectives and jointly supporting research, training and other activities in UK universities in strategically important gap areas. We continue to work closely with existing partners to deepen our existing partnerships to maximise the value we and our partners gain from the arrangement, to restructure to broader sector-wide and cross-sector partnerships where appropriate, and to focus on building a small number of new partnerships in strategically important gap areas, to create a manageable portfolio. We have also developed our strategic partnership with the Technology Strategy Board (TSB) and we are the major public sector funder of the Energy Technology Institute (ETI). Relationships with these and similar organisations have enabled us to significantly reduce the time it takes to exploit breakthrough research and attract significant leverage funding. Since 2008, we have invested approximately £80 million in projects with the TSB and £13 million with the ETI. In total, our £4 billion portfolio has leveraged an additional £700 million in business and collaborator contributions. Examples of innovative research with impact arising from key strategic partnerships include:

SMART DEVICE CUTS HOME ENERGY BILLS

The development of a new energy saving device known as a "Wattbox" by a team of researchers at the Institute of Energy & Sustainable Development at De Montfort University that learns householders' energy habits and provides immediate feedback on consumption and could give home energy savings of up to 20 percent without compromising comfort has been developed through a strategic partnership between EPSRC and **E.ON**. Wattbox controllers are currently being supplied to specialist house evaluation projects.

A close-up view of the Wattbox.



'INFORMATION AGENTS' FOR FASTER, BETTER EMERGENCY RESPONSE

The development of "Information Agents", invaluable in decision-making and directing the actions of the emergency services in the immediate aftermath of natural disasters or terrorist attacks, have been developed by the Universities of Oxford, Bristol and Imperial College London through an EPSRC strategic partnership with **BAE Systems**.

Data generated by the sensor network

CRIME DETECTION AND DATA SECURITY

The Centre for Secure Information Technologies at Queen's University Belfast an **Innovation and Knowledge Centre** jointly funded by EPSRC with the **Technology Strategy Board** and a range of industrial partners, continues to play a key role in undertaking cutting-edge research with a range of applications including crime detection, data security and intelligent surveillance systems.

CSIT building based at Queen's University Belfast.

- **Knowledge Exchange** remains a crucial part of our research and training activities. Around 40 percent of our research portfolio involves collaborations with industry and other users, and we have introduced a number of innovative mechanisms to accelerate the exploitation of research outputs for economic benefit. During this Delivery Plan period, we invested £15 million in **Innovation and Knowledge Centres** (IKCs) - centres of excellence with five years' funding to accelerate and promote business exploitation of an emerging research and technology field. We also invested £44 million in Knowledge Transfer Accounts (KTAs) to support an increased flow of ideas, research results and skilled people between research organisations and communities of users. We have also brought researchers and business users together through events such as Pioneers 09, a dynamic, interactive exhibition highlighting examples of leading-edge university research from over 20 top UK research groups. The event attracted over 700 researchers, business people and venture capitalists.

THEME PARK TECHNOLOGY

Pioneers 09 featured an exhibit by researchers from the University of Nottingham on 'Thrill Technology' that aims to fundamentally change the way we interact with funfairs and theme parks. The exhibit featured a helmet-mounted camera, alongside a set of biosensors mounted on the body that allows the collection of a wide variety of data channels from riders, including facial expression, heart rate and skin conductance. This data could potentially enable individuals to personalise their theme park experience. **A recent report indicated the importance of theme parks to the UK economy. Revenue generated from UK theme parks was £31 million in 2009 and it is anticipated that this figure is likely to grow to over £370 million by 2014**[4].

Monitoring rides at a theme park.

[4] Mintel.com

- We have also continued to invest in demand-led doctoral training. For example, through our Industrial CASE programme we have funded over 600 of PhD studentships since 2008, with businesses working directly with academic partners to arrange projects that meet their needs. Since 2008, we have established 27 Industrial Doctorate Centres to provide students with a high quality doctoral training experience and broader skills development programme undertaking projects relevant to the work of leading companies.

- EPSRC's **leadership of global, economic and societal challenge themes** has enabled us to work in partnership with the research community, to address evolving 21st century challenges and will provide a firm foundation from which to take forward the four main themes of our new Delivery Plan period: **Manufacturing the Future, Energy**, the **Digital Economy** and **Healthcare Technologies**. Impacts include:

FUEL CELLS HIT HOME

A new type of combined heat and power **fuel cell** developed by leading researchers at Imperial College as part of the RCUK **Energy** Programme is generating cheap electricity for the UK. The technology is being commercialised through Ceres Power, a company that was spun-out of the research at Imperial College London. The work has also attracted funding from the Technology Strategy Board and in 2008 the company secured a commercial agreement with British Gas to manufacture and launch a natural gas fuelled combined heat and power system that is due to hit the market in 2011.

Fuel cell combined heat and power (CHP) unit.

THE HOSPITAL OF THE FUTURE

New research to create a 'digital hospital' could dramatically improve healthcare and help save lives, time and money. Utilising wireless broadband technology, the work aims to create a new model of hospital care built on integrated patient monitoring and management. Funded as part of the **RCUK Digital Economy and Next Generation Healthcare Programmes**, the new system will help to guide and prioritise hospital activity in response to the patient status and the recovery trajectory, and will provide early warning of patient deterioration giving clinicians relevant, real-time information at the point of care, ensuring a reduction in adverse events such as unexpected cardiac arrests or unplanned admissions to intensive care. The project is being led by Professor Lionel Tarassenko at the University of Oxford, along with research teams at King's College London and City University.

Developing Leaders

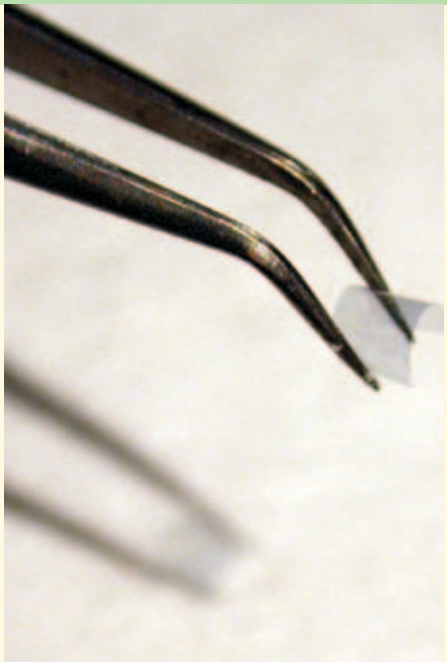
- Since 2008, we have invested in a portfolio of 63 New Centres for Doctoral Training to ensure the UK will have access to the highly talented individuals needed to tackle the biggest problems facing Britain such as climate change, strengthening industry and combating cyber-crime. Building on the success of previous centres of training excellence such as the Engineering Doctorate and Industrial Doctorate Centres, the £320 million investment represents a bold new approach that is providing our future research leaders with the skills, knowledge and confidence to tackle the evolving challenges of the 21st century. Five new centres were established in 2010 in the areas of Communications, Computer Science and Basic Technology.

ADVANCES IN WIND POWER

The Wind Energy Systems training centre at the University of Strathclyde, headed by Professor Bill Leithead, is training PhD students in wind energy science and technology. Students specialise in all aspects of wind power, from aerodynamics and mechanics to the core electrical and power conversion technology required, and combines these skills with an awareness of the wider social and economic issues, thus creating a community of researchers capable of realising the UK's renewables goal.

Professor Bill Leithead of the University of Strathclyde.

- During 2010/11 we invested a further £45 million in Fellowships[5] awarded to the next generation of research leaders. This brings our total investment in Fellowships during this Delivery Plan period to £140 million.



DISCOVERY OF A NEW SMART "META-MATERIAL"

A team based at the University of St Andrews and lead by Dr Di Falco, an EPSRC-sponsored Career Acceleration Fellow, have developed a new material known as Metaflex that could one day be used to fabricate invisibility devices. Using tiny atoms that can interact with light, the flexible new 'smart' material could theoretically appear invisible to the naked eye. Although cloaks designed to shield objects from both Terahertz and Near Infrared waves have already been designed, a flexible material designed to cloak objects from visible light poses a greater challenge, because of visible light's smaller wavelength and the need to make the metamaterial's constituent part – meta-atoms – small enough to interact with visible light.

The research team have developed an elaborate technique which frees the meta-atoms from the hard surface they are constructed on and when stacked together they create an independent, flexible material.

If suitably designed the material may one day be attached to a contact lens, potentially leading to 'perfect' eyesight.

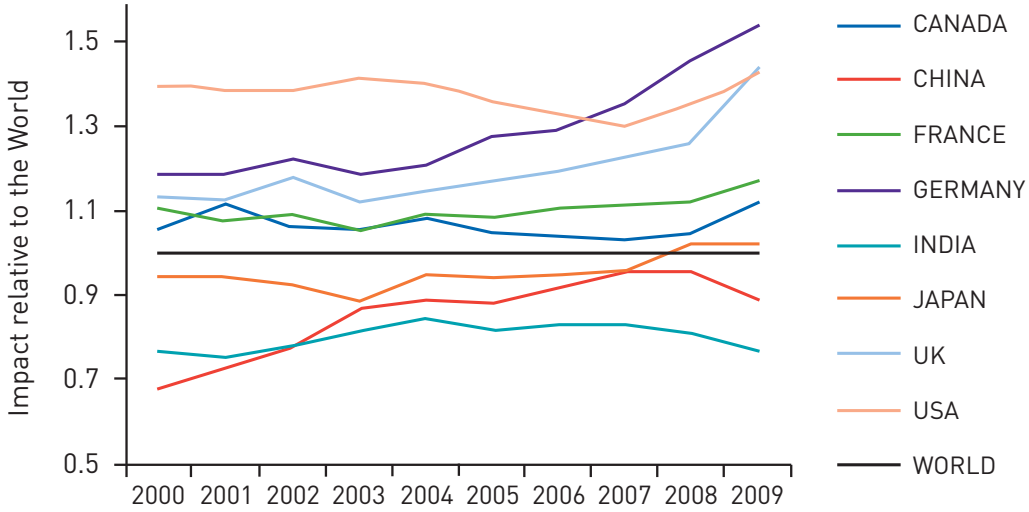
A typical sample of Metaflex held with tweezers.

[5] Includes Career Acceleration Fellowships, Leaderships, Postdoctoral Research Fellowships and Research Chairs

PROGRESS AGAINST DELIVERY PLAN GOALS AND MILESTONES

Engineering and the physical sciences (EPS) are fundamentally important to the UK economy because of the way they contribute to innovation in products, processes, services, and public policy. One study[6] has estimated that the sectors which depend most heavily on EPS account for 30% of UK GDP, 40% of all investment, 75% of all industrial R&D, and over 80% of manufacturing exports. The same study also found that the sectors with the highest dependency on engineering and physical sciences are those with by far the fastest growth of value-added per employee since the 1990s. The crucial role of science and engineering in contributing to a well balanced modern economy has seen growing recognition this year, highlighting further the significance of our mission.

Recent citation analysis undertaken by EPSRC demonstrates a significant increase in the relative impact of UK EPS research in 2008 and 2009:[7]



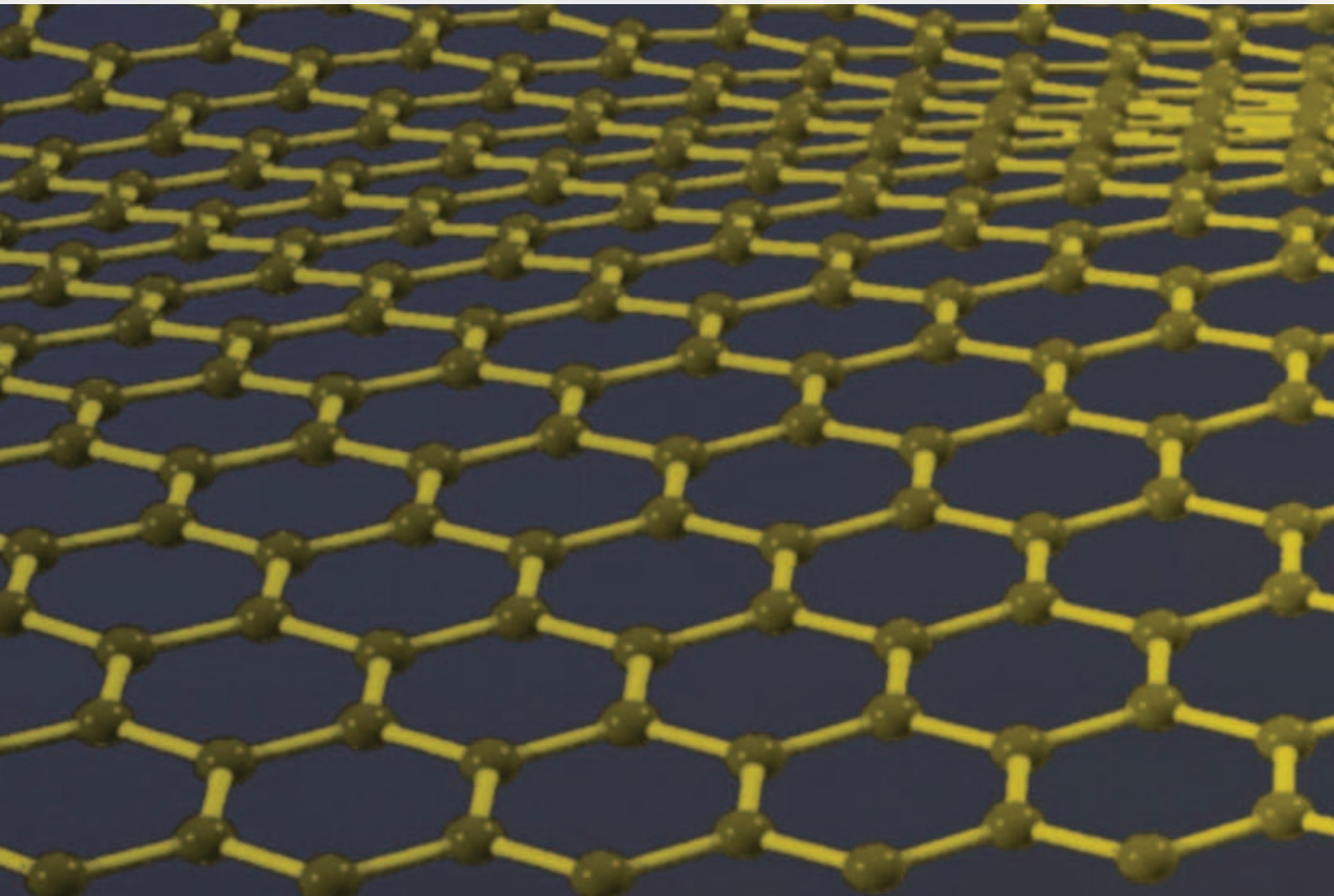
The analysis, of 76 Web of Science topics that fall primarily within EPSRC's remit, demonstrates not only an increase in quality of UK research in EPS subjects over this period but also indicates EPSRC's influence as a major sponsor of research in these areas.

A recent study on 'The economic benefits of chemistry research to the UK'[8] examined the many channels through which chemistry research contributes to the UK economy. The evidence presented in the report showed that the direct and indirect ('spillover') benefits from fundamental chemistry research are significant to the UK. More crucially, the report concluded that it will be the outcomes of this fundamental research that will be a vital ingredient to help answer important technical and societal challenges facing the UK over the years ahead.

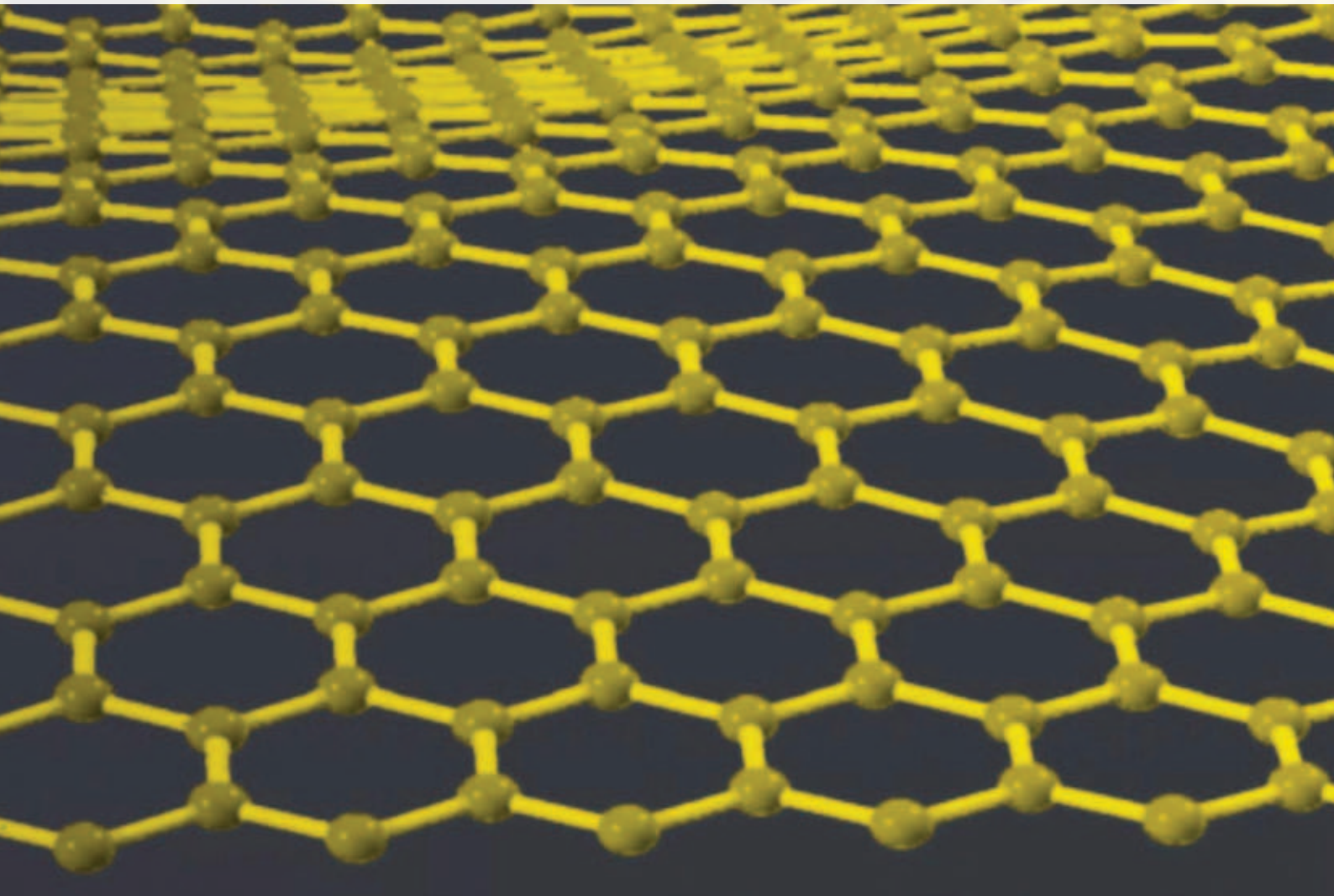
[6] Engineering and Physical Sciences in the UK', SPRU, 2003 – report commissioned by EPSRC and updated in 2009
[7] Data from InCitesTM, Thomson Reuters (2011). Report Created: 16th August 2011 Data Processed Dec 31, 2009 Data Source: Web of Science ® This data is reproduced under a license from Thomson Reuters.
[8] Oxford Economics, October 2010

HEALTHY RESEARCH BASE

EPSRC's role is to shape the research base to ensure that it delivers the highest quality research and world-leading researchers for the benefit of the UK, now and in the future. Our portfolio of research and skills developed during the Delivery Plan period 2008-11 has been focused on ensuring we have a broad based capability for research excellence while providing focus on the strategic needs of the nation, fuelling the economy with knowledge and highly-trained people and delivering an essential platform for the full range of the engineering and physical sciences.



HEALTHY RESEARCH BASE



An artist's impression of Graphene. *Image credit: The University of Manchester.*

Supporting Excellence

EPSRC sponsors excellent, high quality research for the UK and is committed to maximising the impact from that research. Excellence is our watchword and all the work we sponsor will have been selected against our benchmark of international research quality. Our programmes also reflect the major challenges facing our society such as the development of green technologies to help address environmental change and the development of high value manufacturing solutions to ensure we can stimulate economic growth in a competitive global market. Growth is the Government's top priority and EPSRC is helping to contribute through the provision of a world class UK research base responsive to users and the economy, and a strong supply of scientists, engineers and technologists. A high profile example of where EPSRC's funding of research has led to ground-breaking discoveries was demonstrated this year with the award for the Nobel Prize for Physics to the EPSRC-supported Professor Andre Geim and his Russian colleague Dr Konstantin Novoselov. Professor Geim says: "The initial EPSRC grants that got us started were funding curiosity-driven projects, which are generally not expected to have application, certainly not in anything other than the very long term". He is grateful that the continuous support from EPSRC has allowed him the freedom to focus on what he has called 'search' rather than 'research'.

EPSRC funding for excellent research across a breadth of engineering and physical sciences disciplines is also supporting the development of innovative solutions and the training of highly skilled people able to address the challenge that the demands of future **infrastructure** presents. Reliable, safe and resilient infrastructure which enables the supply of water, energy, communications, transport systems and waste systems is essential to society. The demands on future infrastructure in changing environmental, demographic and economic conditions, together with the ageing assets currently supporting our society, requires innovative solutions to be developed in order to ensure a healthy, productive and sustainable society able to support economic growth. The EPSRC portfolio relevant to infrastructure is highly collaborative and includes research areas as diverse as Water Engineering, Sustainable Energy Networks, ICT Networks, Transport Operations and Management, Waste Management and Construction Operations and Management.

Framework agreements, signed with the 12 universities who attract more than 50 percent of our funding have provided us with a structured and systematic basis for discussion enabling us to maximise the impact of EPSRC's investments. Activities held jointly with these Framework Universities have included study days and on-site events designed to ensure better strategic alignment and give university researchers and administration staff an overview of our organisation and the peer review process.

SUSTAINABLE DEVELOPMENT

The Ashford's Integrated Alternatives project has been exploring the feasibility of a more integrated urban utility service provision as a way to improve the sustainability of urban development. The consortium, led by the University of Exeter, has been looking at technology options, the role of stakeholders in decision-making, and new business models. They have been tackling the issues of scale, integration and delivery in an attempt to reduce resource use, limit emissions, manage innovation and improve the quality of life in a case study set in Ashford, Kent.

Our Portfolio

Over the 2008-11 Delivery Plan period, EPSRC invested approximately £800 million per year to fund top quality research and training in engineering and the physical sciences. During 2010/11, we announced nearly 1,000 cutting-edge research projects worth £644 million. Since April 2008, we have supported over 28,000 researchers and students, and collaborated with over 4,321 companies through our programmes.

Our overall research investment sustains an essential platform for a strong research capability through a significant portfolio of research base projects. Examples of high quality and high impact projects funded through investigator-initiated research base funding include:

IMPROVING AIRPORT SECURITY

A prototype high speed baggage scanning system was tested at Manchester Airport in early 2009. It is the culmination of 12 years' work by Dr Edward Morton who came up with the invention at the University of Surrey. Following the trial, the first two fully operational systems will be installed at the airport as part of a contract worth in excess of $20 million. The invention was originally patented by the university and incorporated into its spin-out company CXR Limited, run by Dr. Morton, the inventor and University lecturer. CXR was later sold to OSI Systems Inc. of the USA, which continued to develop it into a fully working system with Dr. Morton. This work was carried out at OSI's UK subsidiary, Rapiscan Systems, based in Crawley.

ADVANCEMENTS IN RENEWABLE FUEL PRODUCTION

Professor William Zimmerman from the University of Sheffield has been awarded the Royal Society Brian Mercer Award for Innovation in recognition of his breakthrough work which promises to revolutionise the **production of alternative renewable fuels**, such as growing algae for biofuel, treating sewage and cooling computers. The manufacture of biofuels currently requires vast amounts of power and when the process uses too much energy it becomes uneconomic. Now EPSRC-funded Professor Zimmerman and his research team at the university's Department of Chemical and Biological Engineering, has devised an air-lift loop bioreactor, an invention which produces miniature gas bubbles, or microbubbles, which transform biomass materials into biofuels more rapidly than larger bubbles, therefore consuming significantly less energy. The device reduces the power used to produce biofuels by at least 20 percent, ensuring that they can be made more commercially and environmentally viable.

Microbubbles transform biomass into biofuels more quickly that larger bubbles.

Professor Sir Colin Humphreys with GaN LEDs.

ECONOMIC SUCCESS FOR GALLIUM NITRIDE LEDS

With long-term EPSRC sponsorship, Professor Sir Colin Humphreys and his team at Cambridge University, in collaboration with Professor Philip Dawson and his group at Manchester University, have been developing gallium nitride (GaN) for use in light emitting diodes (LEDs) suitable for solid-state lighting and other applications. A recent (2010) US Department of Energy report[9] estimates that if high-efficiency low-cost LEDs become widespread in the US for lighting, over $20 billion per year electricity savings would result. The comparable figure for the UK is over £3 billion per year. The UK would also reduce its carbon emissions from power stations by up to 15 percent because of the electricity savings from using LED lighting.

The work of the Cambridge and Manchester groups have delivered positive outcomes for businesses in the lighting industry and its supply chain.[10] For example, Forge Europa, an SME in Cumbria which has been developing, designing and manufacturing energy saving LEDs, received the Queens Award for Innovation in 2009. Its Managing Director Peter Barton writes, *"The excellent work of the Cambridge group has proved to be of great benefit to Forge Europa and assisted our business to grow by over 100% in a 3 year period... A great deal of our knowledge is directly attributed to our links with Cambridge."* Another small UK company with which the Humphreys' group collaborates, PhotonStarLED, founded in 2007, is enjoying phenomenal growth. Its award winning colour tuneable LED product ChromaWhite has recently been nominated as part of Vince Cable's Made by Britain project. PhotonStarLED had five employees three years ago and has around 90 employees across the PhotonStar group of companies. The Cambridge group also collaborates with AIXTRON Ltd, which manufactures the equipment for growing GaN-based LEDs. Tony Pearce, Managing Director AIXTRON Ltd states that *"Our collaboration with Professor Humphreys' group in Cambridge has been hugely valuable to AIXTRON. The research carried out by the Cambridge group not only advances understanding of the material technology, but helps us build deposition systems to meet these demands. AIXTRON remains in a dominant position, selling over 400 systems worldwide in 2010."* As each AIXTRON growth system costs over £2 million Professor Humphreys research group has helped AIXTRON to achieve sales of over £800 million in 2010 alone.

[9] US DOE Report, 2010 "Energy Savings Potential of Solid-State Lighting in General Illumination Applications 2010-2030."
[10] UK Parliamentary Office of Science and Technology, POSTnote 351, Lighting Technology, January 2010.

Rigorous Review

Throughout this Delivery Plan period, EPSRC has sustained its strategy of rigorous evaluation of the disciplines within its remit by using teams of international experts to review performance.

An international review of the RCUK Energy Programme took place in October 2010 and an international review of Mathematical Sciences in December 2010.

RCUK Review of Energy 2010

A panel of eminent overseas researchers, chaired by Carsten Westergaard of Vestas Technology R&D Americas Inc (USA), which compared the strength of the RCUK energy research with world competitors found that the important contribution of this area to the UK enables progress by bringing a fundamental knowledge and understanding of energy which drives advances in many areas. The panel based their review around four key terms of reference-quality, impact, the skills base and targeted programmes.

The panel found the UK Energy academic community to be, on the whole, very well regarded on the international scene for its excellence and found many examples of "impressive excellence", especially where there has been sustained focus. The panel also noted there is a good pipeline of doctoral students and post doctoral research associates working in the energy field in the UK and noted the impressive results from targeted programmes such as SUPERGEN and recommended the continued need for such programmes.

The panel made a number of recommendations in all areas, and these can be found in the full report available via the EPSRC website. In addition EPSRC has recently published an action plan in response to the findings which again can be found on the EPSRC's web site.

2010 International Review of Mathematical Sciences

The review panel, made up of eminent experts from around the globe, visited the UK in December 2010 to assess the quality of the UK research base in mathematical sciences compared to the rest of the world. It also assessed the impact of the research base activities in mathematical sciences internationally and on other disciplines nationally, on wealth creation and quality of life and commented on progress since the 2004 Reviews of Mathematics and Operational Research. *The Panel, chaired by Professor Margaret Wright of New York University concluded that overall, mathematical sciences research in the UK is excellent on an international scale, with world-leading researchers in every subfield.*

The pane also found that actions taken by EPSRC since the 2004 International Review of Mathematics and the 2004 Review of Operational Research have greatly contributed to invigoration of the mathematical sciences, including improved structures for PhD education. The report also highlighted the fact that the newly established institutes and centres dedicated to furthering research in specific topics, inter-disciplinary research and connections with industry have improved the UK's international visibility and standing in the associated areas.

The full report and recommendations of the panel can be found on the EPSRC's website. An action plan in response to the findings is being developed.

Also in 2009/10, a **review of the RCUK e-Science programme** by an international panel of experts judged it 'world-leading', citing that 'investments are already empowering significant contributions to wellbeing in the UK and the world beyond'. EPSRC funded the core e-Science programme which set out to create digital infrastructure and systems to enable large scale research collaboration. Attractive to industry from its inception, the programme has attracted industrial collaborations worth around £30 million. Its achievements include 30 licenses and patents, 14 spin-out companies and over 100 key results taken up by industry. The RCUK Action Plan in Response to the review has also now been published.

Achieving Transformation

Throughout the Delivery Plan period, and underpinning our ambitions to strengthen the UK's international research standing, we have continued to build programmes focused on transformative, highly ambitious and multi-disciplinary research for the UK.

Vision, ambition, leadership and management strategy are some of the demanding requirements of EPSRC's flagship Programme Grants launched in 2009. We sponsored 16 of these grants, worth £78 million that are now delivering transformation in challenging areas such as biosensors for healthcare, super-fast computers and synthetic molecular machines with vast potential for applications.

In addition to our sponsorship of Programme Grants, we have successfully introduced a number of methods for facilitating the transformative research that can revolutionise existing fields, create new subfields, cause paradigm shifts and support discovery.

Ideas Factory Sandpits

We have held a number of 'Ideas Factory' sandpit events — intensive discussion forums where free thinking is encouraged in order to delve deep into the problems on the wider agenda and uncover innovative solutions. An essential element of a sandpit is a highly multidisciplinary mix of participants taking part, some being active researchers and some being potential users of research outcomes, to drive lateral thinking and radical approaches to addressing particular research challenges. There is evidence that sandpit events have led to projects that have changed the scientific landscape, stimulating new research and opening doors to exciting collaborations. Those who have experienced it continue to be influenced by its ethos of ambition and adventure. Topics explored include bridging the global digital divide, tackling gun crime, climate change and the psychological repercussions of disaster.

Creativity @home

We introduced 'Creativity@home', a new initiative to generate and nurture creative thinking and transformative research, in July 2010, following on from a consultation process with senior members of the academic community. Under the scheme, professional facilitators work with groups of researchers for a three day period. Objectives include:

- Learning a range of creative problem solving tools and techniques and how this might aid creativity in research;
- Exploring the future research vision and cross-disciplinary opportunities in the group using these tools;
- Engaging postdoctoral and postgraduate researchers in blue skies idea generation;
- Developing a cohort of trained people who have learnt creative problem-solving techniques so that the approaches become embedded in the group, department or institution.

We received excellent feedback during the evaluation on the initiative; a Professor from Glasgow commented:

..."after experiencing a number of training courses and facilitators, I believe the facilitator for this initiative is excellent. Their style is very appropriate to a bunch of scientists, who tend by their very nature to be sceptical. What I valued most are not the ideas we generated (although I am confident that they will lead to new joint ideas and new grants) but even more valuable was the process he took us through to get there. The process is one that I have already used in a meeting with a potential industrial collaborator — which went well. I could say something about giving us a fish or a fishing lesson and in this case the lesson was excellent. I wish EPSRC all the best and I do hope we can help establish Creativity@home as a central feature of EPSRC".

Due to the success of the Creativity@home pilot EPSRC is now offering the opportunity to our Programme Grant holders and is also exploring how we might apply Creativity@home to our other strategic investments.

Fostering international partnerships

We recognise that scientific challenges do not respect international borders. From the environment to the economy, effective responses will require high quality research with potential for global impact drawing on the talents of leading researchers wherever they may be based. We have focused greater support for world-leading UK researchers to collaborate with internationally excellent research teams around the globe. By the end of March 2011 over £640 million of EPSRC funds had been invested in supporting research with international links — representing a 35 percent increase on 2008 figures. Working with RCUK offices in China, India, the USA and UKRO in Europe, EPSRC's international team represents the interests of UK research on the global stage, seeking to stimulate partnerships, overseas collaborations, alliances with multinational companies and cooperation with international funding agencies.

£640 million

By the end of March 2011 over £640 million of EPSRC funds had been invested in supporting research with international links.

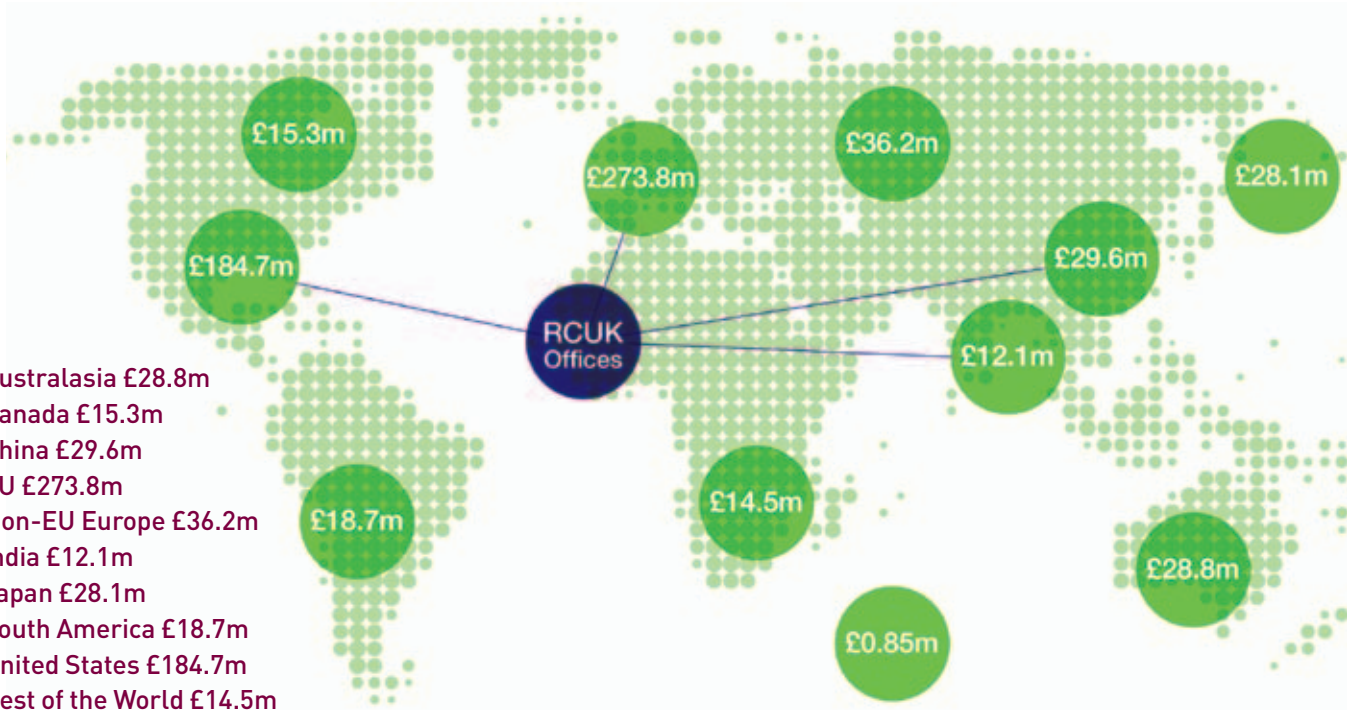
One of the high quality projects we have supported in 2010 is a £2.5 million India-UK collaboration in 'Advancing the efficiency and production of excitonic solar cells' building on existing research in both countries to develop cheaper and scalable solar cell manufacture. EPSRC has worked with the Department of Science and Technology in India to co-fund this project through a joint call with matched funding from each side.

We also launched the International Collaboration Sabbatical (ICS) scheme in 2011 designed to nurture best-with-best international links. The scheme will increase the quality of international collaboration within our portfolio. ICS will allow top UK researchers to embark on extended overseas visits to world-leading research centres.

The ICS call has been launched this April as a pilot, initially focusing on building links with US research groups.

EPSRC INTERNATIONAL RESEARCH FUNDING

Current portfolio as of 01/03/2010 Total = £642.65m



Australasia £28.8m
Canada £15.3m
China £29.6m
EU £273.8m
Non-EU Europe £36.2m
India £12.1m
Japan £28.1m
South America £18.7m
United States £184.7m
Rest of the World £14.5m
Overseas Travel Grants £0.85m

Maintaining the flow of skilled researchers

2,724

We funded 2,724 new students during 2010/11.

EPSRC is committing greater support to the world-leading researchers who deliver high quality research that will most improve our international standing and which will contribute to addressing the UK's research priorities. Our aim is to create an environment that supports talented people throughout every stage of their research careers. As the biggest sponsor of postgraduate research training in engineering and physical sciences in the UK, we funded 2,724 new students during 2010/11 and a total of over 10,000 students during the Delivery Plan period as a whole. The widespread effect such students will have is illustrated by how their predecessors' skills have been deployed. Over 45 percent of the highly skilled postgraduates supported by EPSRC in the past decade have moved on into careers in industry and the public sector.

New Centres of Training Excellence

The major new tranche of Centres for Doctoral Training launched by EPSRC since 2008 with an investment of £320 million have enabled us to meet our Delivery Plan goal of attracting and nurturing talented and skilled early career researchers. As part of providing a high quality research training experience, the centres have close links to industry and are tackling some of the biggest problems facing the UK — from hi-tech crime to sustainable energy. The progress made by these training centres to date will be reviewed during 2011.

During this Delivery Plan period (2008-2011) EPSRC funded 63 new Centres for Doctoral Training, based at 26 universities, investing £320 million.

Centres for Doctoral Training funded during the Delivery Plan period listed by university

UNIVERSITY OF BATH
- Doctoral Training Centre in Sustainable Chemical Technologies
- Industrial Doctorate Centre in Digital Media, Special Effects and Animation

UNIVERSITY OF BIRMINGHAM
- Hydrogen, Fuel Cells and their Application
- Industrial Doctorate Centre in Formulation Engineering
- Structural Metallic Systems for Gas Turbine Applications

UNIVERSITY OF BRISTOL
- Bristol Chemical Synthesis Doctoral Training Centre
- Advanced Composites Centre for Innovation & Science (ACCIS) DTC
- Doctoral Training Centre in Functional Nanomaterials
- Industrial Doctorate Centre in Systems
- Future Communications: People, Power and Performance

UNIVERSITY OF CAMBRIDGE
- Cambridge NanoScience through Engineering to Application Doctoral Training Centre: Assembly of Functional NanoMaterials and NanoDevices
- Cambridge Centre for Analysis

CRANFIELD UNIVERSITY
- Skills Technology, Research, and Management (STREAM): An Industrial Doctorate Centre for the UK Water Sector

DURHAM UNIVERSITY
- Multidisciplinary Centre for Doctoral Training in Energy at Durham University

HERIOT-WATT UNIVERSITY
- Engineering Doctorate Centre in Optics and Photonics Technologies

IMPERIAL COLLEGE LONDON
- Controlled Quantum Dynamics
- A Centre for Doctoral Training on the Theory and Simulation of Materials
- Science and Application of Plastic Electronic materials
- Energy Futures DTC
- Centre for Doctoral Training in Non-Destructive Evaluation

LANCASTER UNIVERSITY
- The Digital Economy Innovation Centre
- Centre for Doctoral Training in Statistics and Operational Research

UNIVERSITY OF LEEDS
- Technologies for a Low Carbon Future
- Basic Technologies for Molecular-Scale Engineering

LOUGHBOROUGH UNIVERSITY
- Industrial Doctorate Centre for Innovative and Collaborative Construction Engineering

THE UNIVERSITY OF MANCHESTER
- Nuclear Fission Research, Science and Technology Doctoral Training Centre
- NOWNANO: A North-west Nanoscience Doctoral Training Centre
- Industrial Doctorate Centre in Nuclear Engineering
- Centre for Doctoral Training in Computer Science

NEWCASTLE UNIVERSITY
- Industrial Doctorate in Biopharmaceutical Process Development

UNIVERSITY OF NOTTINGHAM
- Ubiquitous Computing for a Digital Economy
- Efficient Power from Fossil Energies and Carbon Capture Technologies
- MTC Engineering Doctorate Centre

UNIVERSITY OF OXFORD
- Biomedical Engineering at the Translational Interface of Next Generation Healthcare
- Systems Biology Doctoral Training Centre
- Systems Approaches to Biomedical Science Industrial Doctoral Centre

QUEEN MARY UNIVERSITY OF LONDON
- Doctoral Training Centre in Digital Music and Media for the Creative Economy

UNIVERSITY OF READING
- Technologies for Sustainable Built Environments

UNIVERSITY OF SHEFFIELD
- Doctoral Training Centre in Advanced Metallic Systems — Challenges in Global Competitiveness
- Sheffield Training in Interdisciplinary Energy Research: STIER
- Industrial Doctorate Centre in Machining Science

UNIVERSITY OF SOUTHAMPTON
- Industrial Doctorate Centre in Transport and the Environment
- A Doctoral Training Centre in Complex Systems Simulation
- Doctoral Training Centre in Web Science

UNIVERSITY OF ST ANDREWS
- The Scottish Doctoral Training Centre in Condensed Matter Physics

UNIVERSITY OF STRATHCLYDE
- Doctoral Training Centre in Wind Energy Systems
- Application of Next Generation Accelerators
- Industrial Doctorate Centre in Advanced Forming and Manufacture

UNIVERSITY OF SURREY
- Industrial Doctorate Centre in Micro and Nano Materials and Technologies
- Industrial Doctorate Centre in Sustainability for Engineering and Energy Systems

SWANSEA UNIVERSITY
- Manufacturing Advances Through Training Engineering Researchers

UNIVERSITY COLLEGE LONDON
- Industrial Doctoral Training Centre for Bioprocessing Engineering Leadership
- Doctoral Training Centre in Financial Computing
- Industrial Doctorate Centre: Molecular Modelling & Materials Science
- Industrial Doctorate Centre in Virtual Environments, Imaging and Visualisation
- Industrial Doctorate Centre in Urban Sustainability and Resilience
- Doctoral Training Centre in Photonic Systems Development
- Security Science Doctoral Training Centre at UCL
- Doctoral Training Centre in Energy Demand Reduction and the Built Environment

UNIVERSITY OF WARWICK
- Centre for Mathematical Sciences
- Magnetic Resonance Basic Technology Centre for Doctoral Training
- Engineering Doctoral Centre in High Value, Low Envrionmnetal Impact Manufacturing

UNIVERSITY OF YORK
- Fusion Doctoral Training Network

£39 million

Awards worth £39 million were made to 46 Career Acceleration and Leadership Fellows in 2010.

During 2010, we confirmed support for five new Centres for Doctoral Training in the areas of Communications, Computer Science and Basic Technology. These five centres represent a £10.3 million investment from EPSRC but also benefit from significant additional support from the host institutions.

The Manchester Centre for Doctoral Training in Computer Science is led by Professor Steve Furber and proposes "a new model of PhD training which preserves the deep technical research study associated with the UK PhD, while augmenting this with training and practical experience in creativity and innovation, scientific evaluation, and experiences working with and communicating with users from outside academia."

The Future Communications: People, Power and Performance centre at the University of Bristol is led by Professor David Bull and aims to "establish a world-leading research partnership which is focused on demand and firmly footed in a commercial context, but with freedom to conduct academically-led blue skies research."

The three Basic Technology CDTs involve a total of eleven universities, working collaboratively to provide doctoral students with high-quality training, guidance and exposure to the wider academic and industrial communities, equipping them to make a real difference in the areas of: applications of next generation accelerators; magnetic resonance technology and molecular-scale engineering. For example, the Centre for Doctoral Training in Basic Technologies for Molecular-Scale Engineering (joint between the Universities of Leeds and Sheffield) will train scientists and engineers who can work across disciplinary boundaries in the development of nanoscale molecular control technologies leading to a diverse range of advances in areas such as more efficient personalised healthcare (for example, information-driven healthcare and point-of-care diagnostics and devices).

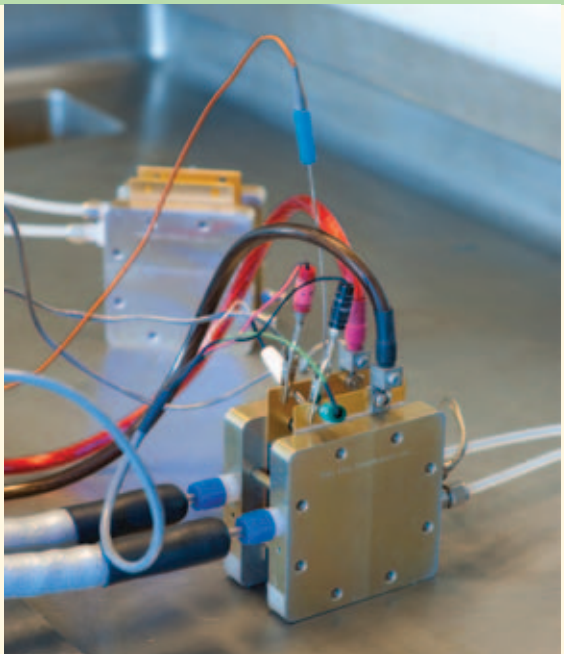
Sponsoring world class research leaders

We are committed to increasing our support for world-leading individuals who are delivering the highest quality research to meet UK and global priorities. Our fellowship schemes foster the ambition and adventure of such talent with high potential. 46 Fellowships (30 Career Acceleration Fellowships and 16 Leadership Fellowships) totalling £39 million were awarded in 2010/11. In addition, we invested a further £5.1 million in Postdoctoral Research Fellowships. These new investments bring our total investment in fellowships[11] during the Delivery Plan period to over £141 million.

Leadership Fellowships

In 2010, 16 Leadership Fellowships were awarded to highly talented researchers who have demonstrated the potential to establish themselves as leading researchers of international standing in their area by the end of their award. It is also anticipated they will demonstrate leadership within their institution and research community and contribute to the uptake of research outputs for economic and social impact.

[11] Includes Career Acceleration Fellowships, Leadership Fellowships, Postdoctoral Research Fellowships and Research Chairs.



FUEL-CELL TECHNOLOGIES

A team of researchers led by EPSRC sponsored **Leadership Fellow Dr John Varcoe** is developing fuel-cell technologies that could be used to convert carbon dioxide into usable hydrocarbons and create self-powered desalination plants. Molten carbonate fuel cells (MCFCs) create a mixture of CO_2 and hydrogen that the University of Surrey team argues could be used to create hydrocarbon fuel if it can be produced at a lower, more cost-effective temperature. This would effectively allow the waste CO_2 from existing power stations to be recycled back into fuel.

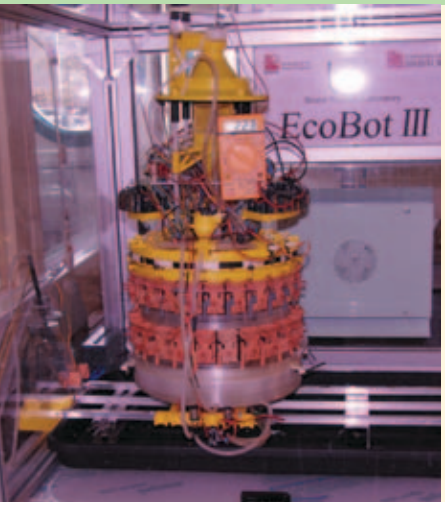
A single cell fuel cell for long term polymer electrolyte testing and evaluation of anion-exchange membranes in low temperature carbonate fuel cells.

MATHEMATICAL THEORIES AND TECHNIQUES

Professor Sofia Olhede from UCL's Statistical Science Department has been awarded a Leadership Fellowship to develop mathematical theories and techniques to analyse evolving processes and apply these methods. The applications include problems in neuroscience such as understanding pain-perception in prematurely born infants, problems in ecology characterising the spatial structure of longitudinal data, as well as the analysis of oceanographic drifter data, strongly linked to climate models.

Career Acceleration Fellowships

This year, 30 Career Acceleration Fellowships were awarded to researchers at an early stage of their career providing an opportunity for them to focus on research for the period of the award. The recipients are expected to have established an independent career of international standing by the end of the award.



WASTEWATER-POWERED ROBOT

A team at Bristol Robotics Laboratory (BRL) is investigating the use of urine within Microbial Fuel Cells (MFCs), which use bacterial cultures to break down organic material to create power. MFCs are a developing technology and the BRL team – with EPSRC's support – have been using it for over a decade to power autonomous robots. Researchers at BRL, a collaboration between the University of Bristol and the University of the West of England (UWE), have spent the last three and a half years developing a wastewater-powered robot with an artificial stomach, thanks to EU and EPSRC funding. Now, BRL's Dr Ioannis Ieropoulos has been awarded an EPSRC Career Acceleration Fellowship Grant worth £564,561 for a four-year project, which will take this work further.

EcoBot-III fully operational inside its arena.
Image credit: Bristol Robotics Laboratory

DIFFERENTIAL MICROWAVE IMAGING FOR ADVANCED CLINICAL APPLICATIONS

With funding from an EPSRC Career Acceleration Fellowship, Dr Maciej Klemm and a team at the University of Bristol are exploring novel Dynamic Microwave Imaging (DMI) techniques for use in advanced clinical applications. The goal of DMI is to image temporal changes in average electrical properties of tissue, and not the tissue itself. This opens up totally new applications where the standard Microwave Imaging could not be applied. The project will focus on two applications: three-dimensional imaging of nanoparticles (of great interest to researchers working in the cancer imaging field); and functional brain imaging (with potential uses including diagnosis of metabolic diseases and lesions such as those found in Alzheimer's disease or epilepsy). The project is being conducted in collaboration with the Institute of Cancer Research in Sutton, Frenchay Hospital in Bristol, the University of Oxford and Dartmouth College, USA.

Challenging Engineering Awards

The EPSRC's Challenging Engineering programme is designed to identify and support the most promising early career researchers with the potential to become future leaders of engineering research, with the ambition of building a team around them to deliver their research vision.

The 2010 Challenging Engineering Awards focused on three areas of our remit — Materials, Mechanical and Medical Engineering, Information and Communications Technologies and Process, Environment and Sustainability. Ten new Challenging Engineering awards were made across the three areas totalling £4 million.

INNOVATIONS IN HOSPITAL DESIGN

Dr Rebecca Cain, from the University of Warwick, is the holder of a Challenging Engineering Award that has gathered significant momentum in 2010/11. She is building a multi-disciplinary group of researchers to tackle the problem of bad hospital design. The research is looking at how engineers and designers can use participatory design to involve patients and clinicians in the design process of future healthcare environments. Dr Cain and her team are exploring how creative uses of new digital technology can be used to open up participation in the design process. Speaking about her award, Dr Cain said "I have the ability to design ambitious research around a grand vision, which I wouldn't have been able to do with standard funding".

£45 million

We supported a range of research facilities and services during the Delivery plan period totalling in excess of £45 million.

Developing Leaders — our future approach

Our vision, as we move into the next Delivery Plan period, is to continue to support the most talented and forward-thinking researchers. We will further increase the quality of the PhD by building on our successful approach to cohort-based training. Furthermore, to protect our support for PhD provision in Centres for Doctoral Training and Doctoral Training Grants within a portfolio balancing investment between research and training, we will no longer support project studentships on research grants. To ensure we have the necessary talent available in our Delivery Plan priority areas, we will also increase the proportion of our PhD students trained in strategically important areas such as energy and manufacturing. To encourage mobility, for example between academia and industry, and to increase the impact and breadth of experience, we will continue to set case conversion targets within Doctoral Training Grants (DTGs). We will also ensure that we attract the very best international students to train with leading research teams in the UK to increase our global presence and influence.

Further details can be found on the EPSRC web site.

Access to the best large-scale research facilities

We recognise that access to the best research facilities is often essential for enabling internationally-leading research to be undertaken and is a crucial factor in maintaining international research excellence and maximising impact from innovative ideas for the benefit of the UK economy. Our support for shared central facilities and services forms an important part of our portfolio for delivering these objectives. Throughout the Delivery Plan period, EPSRC has supported a range of facilities and services with funding totalling in excess of £45 million, including the most advanced high-end computing facility in the UK, HECToR. This £113 million supercomputer, also supported by NERC and BBSRC, was upgraded in 2009 to its theoretical peak performance of 274 teraflops and it has continued in 2010 to bring this stunning calculating power to bear on many projects that will benefit society.

Engineering and physical sciences researchers also continue to utilise neutron and photon sources for experimental studies including exploitation of the facilities supported by the Science and Technology Facilities Council. These include Diamond, the synchrotron machine best described as a series of giant microscopes, located at Harwell. A new research complex next to Diamond and the pulsed neutron source ISIS was completed this year to enable researchers from around the UK to be located nearby to fully exploit these and other on-site facilities such as the Central Laser Facility.

NEXT GENERATION FRIDGES AND COOLING SYSTEMS

ISIS has helped a team of EPSRC sponsored scientists at Imperial College London and the University of Cambridge gather new data on how a material behaves at high temperatures and in strong magnetic fields which could lead to **more efficient fridges and cooling systems**. Magnetic refrigeration that uses solid refrigerants instead of the potentially more damaging volatile organic compounds such as fluorocarbons (FCs) or hydrofluorocarbons (HFCs), could lead to the production of cooling systems that are more energy efficient, emit less noise, and are less harmful to the environment.

As we move into the next Delivery Plan period, our vision is to ensure that our community has the tools, equipment and infrastructure necessary to maintain and develop its internationally leading status, and to ensure that our university-based investments remain internationally competitive and sustainable. We will work in partnership with our colleagues across the Research Councils, universities, researchers and other funders to enable the provision of excellent research facilities, institutes and data resources, which are a crucial resource for the UK in addressing strategic research needs.

GREATER ECONOMIC AND SOCIAL IMPACT

GREATER ECONOMIC AND SOCIAL IMPACT

Image credit: Wind Power Ltd

Greater Economic and Social Impact

40%

Around 40% of our research portfolio involves collaborations with industry.

In 2010, EPSRC has continued to demonstrate its leadership in driving forward the Government's agenda for balanced and sustainable growth through a step change in impact from research council investments. Our strategy and programmes recognise that a more diversified and balanced economy is crucial to the UK's global competitiveness and lasting prosperity.

The evidence of EPSRC-funded collaborative research has real impact has been clear throughout the Delivery Plan period. For example recently, collaborative engineering projects co-funded and/or inspired by EPSRC research have won five out of a possible ten categories at **The Engineer magazine's annual Technology & Innovation Awards 2010**.

The award for Civil Engineering went to the University of Nottingham and Roger Bullivant Ltd for a pioneering project that turns the foundation piles of new buildings into heat exchangers for ground source heat pumps – with the potential to significantly reduce carbon dioxide emissions.

The award for Manufacturing & Process Innovation went to Loughborough University, Econolyst, Bentley, Alcon Components, Delphi, Virgin Atlantic, Boeing and MTT Technologies for innovations in Additive Manufacturing (AM). EPSRC-sponsored researchers pioneered the use of AM for production components and assemblies. The technology uses 3D laser and advanced printing techniques to build up solid objects layer-by-layer – with almost zero waste of precious raw materials.

The University of Manchester and Rapiscan Systems won the award for Defence & Security for the RTT 80 airport baggage scanner. The scanner was developed by Rapiscan Systems and EPSRC-supported researchers and is far faster and more reliable than existing technologies.

The Environmental Technology award went to Durham University, Cambridge Display Technology and Thorn Lighting for developing applications for energy-saving organic LED (OLED) technology, which has clear potential to become the dominant form of lighting in the near future. EPSRC-sponsored research and development has been pivotal in the development of OLED technology.

Finally, Southampton University, the British Skeleton Association, UK Sport, Sheffield Hallam University and BAE Systems won the award for Sports Technology for Blacroc, the code name for a four-year project led by and named after EPSRC-supported scientists Rachel Blackburn and James Roche, to design a radical new sled for the GB skeleton bob team, which helped athlete Amy Williams win gold at the 2010 Winter Olympics. This story was highlighted in our 2009/10 Annual Report.

Knowledge exchange

Knowledge exchange is an essential part of our research and training activities. Around 40 percent of our research portfolio involves collaborations with industry and other users where our researchers work with some 2,300 user organisations and where we leverage a contribution of £700 million from such partners.

In 2010/11 we saw a number of highlights emerge from the investment we made in 2009, in 12 Knowledge Transfer Accounts totalling £44 million and 13 Knowledge Transfer Secondment Awards with a value of £11 million.

DATING ARCHAEOLOGICAL FINDS

A research team from the universities of Edinburgh and Manchester has developed a new technique for dating archaeological finds. A series of EPSRC grants over the last 18 years into the behaviours of **cements and mortars** during the heating and cooling processes have resulted in Knowledge Transfer Account funding that has enabled the research team to take the techniques through to commercialisation.

TREATMENT FOR MEDICAL DEVICES

With funding from a Knowledge Transfer Account, a team of researchers from Durham and Newcastle universities are developing a **chemical treatment for medical devices** such as catheters and heart valves aimed at reducing the risk of patients developing infections such as MRSA whilst in hospital. Organisms that cause infections tend to stick to such devices and although good hygiene and antibiotics can reduce infection rates, we still need new ways of preventing them from occurring. Working with surgical experts at South Tees NHS Trust, the research teams, have developed a new way to treat the surface of materials and devices with chemicals which will kill infective bacteria.

FUTURE OF TRANSPORT SYSTEMS

The future resilience of the UK transport network depends on technology and infrastructure changes, climate and extreme weather events. The Future Resilient Transport Networks (FUTURENET) is a four year research project, jointly funded by EPSRC and the Economic and Social Research Council. It aims to provide a vision and the tools to assess and plan for transport systems in the future.

The team is exploring the nature of the UK transport system in 2050 both in terms of its physical characteristics and its usage, and the shape of the transport network in 2050 that will be most resilient to climate change. This includes developing transport demand scenarios, case study infrastructure asset inventories and models of weather or climate induced failure mechanisms that might affect transport systems.

The work will help the decision making of government (local and national), transport planners, transport managers and professional engineers to improve their decision making with regard to anticipated changes in climate, technology, social behaviour and economies.

FUTURENET is led by the University of Birmingham with partners from Loughborough and Nottingham Universities, HR Wallingford, the British Geological Survey, and TRL Limited as well as stakeholder groups including Network Rail, Highways Agency, the Institution of Mechanical Engineers, and WSP.

EPSRC Centres for Innovative Manufacturing

Launched in 2010, the new EPSRC Centres for Innovative Manufacturing are part of a novel approach to strengthen the UK's research capability and to maximise the impact of excellent high quality innovative research for the UK. The centres support existing industries, and perhaps more importantly will help open up new industries and markets so contributing to the growth of the UK economy.

Each centre will receive five years' funding to retain staff, develop collaborations, carry out feasibility studies, and support up to two research projects. There is a clear business need for each centre and EPSRC support will be used as a platform from which the centres can secure further investment from industry and other funders. Twelve centres have been established in areas as diverse as regenerative medicine, photonics and intelligent automation. Impact from the centres is already being realised — for example, through innovations in materials one of the centres has already helped significantly reduce the weight of leading makes of cars thereby reducing costs and fuel consumption.

28

EPSRC has current Strategic Partnerships with 28 organisations.

Key Strategic Partnerships for prosperity

We recognise the need to develop effective Strategic Partnerships with key user organisations in order to bring additional relevance and potential impact to our research portfolio and deliver substantial extra funding to support research and skills development in universities. EPSRC has current Strategic Partnerships with 28 organisations with total research funding of £157 million from EPSRC and £113 million from the partners.

There is evidence to show that our Strategic Partners have benefitted from new connections, leverage of science and funding, changing academic culture and new concepts and ideas. Working in partnership with EPSRC has enabled greater coordination of R&D approach and engagement with external longer-term research for a number of partners. Our agreements have given partner organisations access to valuable long-term research that underpins the research the partners fund themselves. These agreements also help partner organisations develop a more strategic approach to their research, facilitate the development of new ways to address some research needs and help to generate increased value for money from the research funded.

"GSK organic chemists have changed how they think about some of their research challenges, by working closely with EPSRC we have changed that cultural mindset within GSK such that the chemists now think more broadly about the scientific challenges they are attempting to address." **Dr Malcolm Skingle, GlaxoSmithKline**

Partnering the Technology Strategy Board

EPSRC has played a key role in delivering impact through partnership with the Technology Strategy Board (TSB). We are supporting the underpinning research that is essential to enable the emerging technologies to be taken forward to business exploitation through collaboration with the TSB. Since its inception in 2004, we have funded over 300 projects with the TSB and now have a joint portfolio of over £280 million of aligned activities including contributions from business. During this Delivery Plan period, we have committed over £80 million of funds to aligned activities, far exceeding the £45 million target set for us by the Department for Business, Innovation and Skills (BIS) at the start of the Comprehensive Review period.

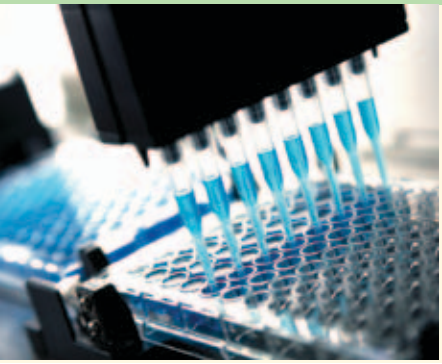
Examples of innovative projects funded through our work with the TSB include:

PLASTIC ELECTRONICS

In 2010, we invested just under £1 million (in addition to an investment of £7.4 million by the TSB) in projects that will lead to the creation of a range of new products such as conformable and rollable electronic displays, ultra-efficient lighting and low-cost, long-life solar cells. The investment was announced in July 2010 by the Universities and Science Minister, David Willetts, during a speech to the Tomorrow's Giants conference in London in which he said: "This technology offers enormous potential to help our local environment, improve our everyday standard of living and support the nation's economy.... Commercially exploiting the outputs of the UK's world-leading science and research base has a vital role to play in helping our economy to grow." This builds on our significant investment to date on the fundamental research on which the area of plastic electronics has been developed.

INNOVATIVE SOLUTIONS TO UK'S TRANSPORT AND LOGISTICS CHALLENGES

EPSRC invested in a £10 million project with the TSB, Department for Transport and the Highways Agency to support research and development leading to the introduction of innovative systems and services to help goods move around the country more effectively. This will help enable the UK to support more freight traffic as the economy grows, while decreasing the associated road congestion and environmental impact. The project seeks to promote industry collaboration and the use of systems engineering and integration to increase efficiencies in the whole logistics network.



REGENERATIVE MEDICINE

Sixteen research and development projects in the field of regenerative medicine therapeutics received a total of £3.6 million of investment, while a further £1.6 million is to be invested in 12 feasibility studies in the area of regenerative medicine tools and technologies. The investment is part of a £21.5 million programme of competitions funded by EPSRC, TSB, MRC and BBSRC that will enable the companies involved to accelerate product development to take advantage of future market opportunities and, in the case of feasibility studies, explore opportunities to develop platform tools and technologies to overcome key product development challenges including safety/efficacy testing and manufacturing.

LOW CARBON VEHICLES

We invested £10 million in three major projects to address fundamental research questions in developing low carbon vehicles, developed by EPSRC with the Technology Strategy Board (TSB) through the Low Carbon Vehicle Innovation Platform Integrated Delivery Programme. The projects will cover scientific and engineering issues related to:

- Hybrid electric vehicles subsystems, enabling the design of more efficient vehicles;
- The use of recycled and recyclable materials for manufacturing vehicles, reducing their environmental footprint;
- Optimising the performance of electric motors and power electronics.

Innovation and Knowledge Centres

In 2010, we announced funding for two additional Innovation and Knowledge Centres (IKCs) that combine business knowledge with the most up-to-date research to harness the full potential of emerging technologies — with the aim of ensuring the UK is first to develop the cutting-edge research we produce. The two new centres — based at the University of Cambridge and Swansea University will focus on areas where world-class scientific breakthroughs have already been achieved. They will build on the success of the existing centres at Cambridge, Cranfield, Queen's Belfast and Leeds universities. The new IKCs will bring together high calibre teams with outstanding research records to explore the potential of these breakthroughs and bring new technologies to market more quickly.

Swansea University's new centre is called SPECIFIC — the Sustainable Product Engineering Centre for Innovative Functional Industrial Coatings. SPECIFIC's primary aim is to transform buildings into 'power stations' through the rapid commercialisation of functional coatings on steel and glass in the areas of energy capture, storage and release. The ambitious target of the SPECIFIC academic and industrial partnership is to generate a portfolio of products which, by 2020, will generate over one third of the UK's requirement for **renewable energy**.

The University of Cambridge centre will combine research in sensor and data management with innovative manufacturing processes to provide radical changes to the construction and management of infrastructure. The aim is to transform the industry through a whole-life approach to achieving sustainability in construction and infrastructure, covering design and commissioning, the construction process, exploitation and use, and eventual decommissioning.

Spin-out successes

A key measure of our success in delivering impact from our investments is the new business start-ups which emerge as a result of EPSRC support. Twenty five new spin-out companies were reported in 2010, bringing the total to 148 identified since 2008. The companies cover a diverse range of areas from the detection of chemicals to harnessing wave power to bio-engineering. We recently undertook an analysis of the spin-out data held for the period between 2005/06 and 2007/08. Of the 84 spin-outs identified during this period, 70 were still active in their 'original' spin-out form in 2010 and seven more had been taken over by other companies; clearly demonstrating the success of EPSRC spin-out companies.

Tissue Regenix is an example of a highly successful spin-out company which arose from EPSRC-funded research. The company, specialising in human tissue regeneration products based on research at the University of Leeds, has won European approval to sell its first product – a vascular patch derived from pig tissue which repairs damaged human veins. This will provide a valuable alternative in an area where donor tissue is in short supply.

Tissue Regenix's dCELL® Vascular Patch is a sterile, non-cellular biological scaffold which is intended to be permanently implanted into the human body for vascular repair. An example of its use is as a patch to close a blood vessel after the surgical removal of plaque in an artery that has become narrow or blocked. The company has recently become listed on AIM, the London Stock Exchange's international market for smaller growing companies, and has secured patents in the US and Australia.

The company believes its cutting-edge technology could revolutionise this area of medicine in a global industry worth an estimated $7 billion.

User-led skills

We ensure that our training programmes not only develop highly skilled researchers but also maximises impact by involving user organisations in collaborative skills development, often focused in centres. EPSRC invested a further £10.3 million in Centres for Doctoral Training in 2010/11. The centres are now providing in excess of 900 doctoral students not only with internationally leading research skills but also in the business skills they need to generate new knowledge and to turn their pioneering ideas into products and services.

Many key sectors of the UK economy are heavily dependent on engineering and physical science PhDs and demand has been increasing in areas such as pharmaceuticals, aerospace, computing, telecommunications and finance. There is evidence that the sectors with the highest dependency on engineering and the physical sciences are those with by far the fastest growth of added value per employee since the 1990s. Our major contribution to the flow of skills into these sectors is that we fund 35 percent of all PhDs qualified in engineering and the physical sciences. In the past year over half of these will have become employed in business or public services.

The automotive and aerospace industries in the UK received a major boost in 2011 with the announcement of five new centres across the UK to train engineers of the future. We have co-funded five new Industrial Doctorate Centres covering key areas of advanced manufacturing vital to growth in two of the UK's biggest industrial sectors.

The new EPSRC centres will help students taking an engineering doctorate (EngD) to understand the needs of business, how to be entrepreneurs, as well as training them in the most innovative future technologies in advanced manufacturing.

Global, Economic and Societal Challenge Themes

This Delivery Plan period EPSRC working with other Research Councils and partners, has continued to tackle major economic and societal issues with renewed vigour through expanding the research programmes it leads on energy, the digital economy, next generation healthcare and nanoscience through engineering to application. In doing so, we have actively engaged the users of research in business, Government, public and other non-Governmental organisations. We have built new relationships with counterpart agencies in target countries and worked with RCUK offices to identify opportunities for and lower barriers to international collaboration. Examples of our successful leadership of priority theme areas and achievements in 2010/11 include:

Energy

The EPSRC-led RCUK energy programme has invested £520 million[12] in research needed to contribute to the dramatic reduction in carbon emissions required to tackle climate change and to help the UK meet its future energy needs. In 2010/11, EPSRC invested a further £100 million in world-class energy projects bringing our total investment in this area to over £500 million over the Delivery Plan period as a whole. Highlights of the programme's activities include:

- An International Review of the RCUK Energy Programme which found *"the UK Energy academic community to be very well regarded on the international scene for its excellence"*. The panel recognised that there are many examples of impressive excellence, especially where there has been sustained focus. For example in wave and tidal energy.
- Projects addressing interdisciplinary challenges in networks and transport behaviour were supported. A nuclear network champion was appointed with the role of networking the community, providing a focus for stakeholder engagement and knowledge transfer and facilitating community access to facilities.
- The Energy Programme aims to increase the international profile of its researchers. As part of this a number of activities were carried out with international partners, notably with China and India. For examples projects were jointly funded in "Bridging the urban and rural divide", nuclear fission, carbon capture and storage technologies and solar cells, solar fuels and fuel cells.
- The work being undertaken by 12 Centres for Doctoral Training in the energy area have gained momentum with many centres recruiting their third cohort in autumn 2011. These centres have been established to secure the future supply of world leading energy researchers. The Centres for Doctoral Training (CDTs) provide students with a better whole systems understanding and improved learning environment in priority areas for the Energy Programme. Progress made by the CDTs to date will be assessed as part of the general CDT review that is taking place in 2011.

LOW CARBON TECHNOLOGIES

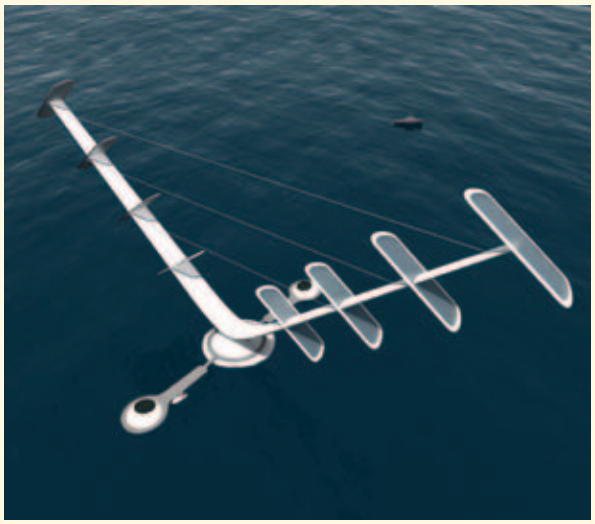
The Centre for Doctoral Training in Low Carbon Technologies at the University of Leeds brings together a cohort of postgraduate research students and their supervisors to develop innovative technologies for a low carbon future based around four key interlinking themes: low carbon enabling technologies, transport and energy, carbon storage and climate change and energy systems research.

The students will have the opportunity to develop high-level expertise in a particular topic, but with the excitement of working in a multidisciplinary environment stretching across science, technology, economics, business and policy. The centre will train at least 50 students in its first five years.

- Continued development of the SUPERGEN programme, a key initiative in Sustainable Power Generation and Supply. Fourteen consortia are supported representing an investment of over £98 million. As well as the impressive array of technology being furthered by the several dozen university departments involved, along with their numerous industrial partners, the consortia have broken new ground in the way they have approached their subjects.
- Investment in the UK Energy Research Centre (UKERC). UKERC carries out world-class research into sustainable future energy systems. It is the hub of UK energy research and the gateway between the UK and the international energy research communities. The centre's interdisciplinary, whole systems research informs UK policy development and research strategy.
- Throughout the Delivery Plan Period we have built and maintained a successful partnership with the Energy Technologies Institute (ETI). The ETI is a partnership between global industries and the UK government that brings together projects that create affordable, reliable, clean energy for heat, power and transport. ETI comprises six private companies — BP, Caterpillar, EDF Energy, E.ON, Rolls-Royce and Shell — with public sector funding provided by EPSRC and the TSB. EPSRC funded academics have contributed to many of the ETI projects.

[12] Since 2004

FOUR INNOVATIVE ETI PROJECTS AIDED BY EPSRC FUNDING



Project Nova:
A UK-based consortium led by Guildford energy specialists OTM Consulting and including representatives from three universities – Cranfield, Strathclyde and Sheffield – the Centre for Environment, Fisheries and Aquaculture (CEFAS) and SME Wind Power. Key sub-contractors include James Ingram Associates and QinetiQ. The now-completed project demonstrated the tremendous potential for vertical axis wind turbines offshore compared with traditional designs, and should lead to renewed focus on investment and commercial development of very large vertical axis machines.

Image credit: Wind Power Ltd

Project Deepwater Turbine
A consortium led by Blue H Technologies with representatives from UK groups including BAE Systems, the Centre for Environment, Fisheries and Aquaculture (CEFAS), EDF Energy, Romax and SLP Energy. The project has shown that it may be possible to use floating turbines to exploit deeper water sites off the coast of the UK where the wind speeds are both higher and more consistent, to produce electricity at a similar cost to existing and proposed offshore sites where the turbines are in shallower water up to 40 metres deep.

Project Helm Wind
A UK-based consortium led by E.ON Engineering and including representatives from Rolls-Royce, BP Alternative Energy and the University of Strathclyde. The project has demonstrated the huge potential for offshore wind to reduce carbon emissions and create economic prosperity, as well as increasing energy security of supply.

Project ReDAPT
A UK-based consortium led by Rolls-Royce and including Tidal Generation Limited, Garrad Hassan, the University of Edinburgh, EDF Energy, E.ON, Plymouth Marine Laboratories and the European Marine Energy Centre (EMEC). The project aims to install and test a 1MW tidal turbine at the EMEC in Orkney, delivering detailed environmental and performance information never before achieved at this scale in real sea conditions.

The information that we have learnt from projects in our offshore wind programme will now be analysed further and inform ETI's next projects that help to provide affordable, reliable and secure energy sources for the future.

Digital Economy

£33 million

We invested a further £33 million in Digital Economy projects in 2010/11.

The Research Councils UK Digital Economy Programme (DE) aims to realise the transformational impact of ICT for all aspects of business, society and government by bringing together the underpinning technologies and focusing on understanding the impacts of the research and what drives users. Led by EPSRC, the RCUK Digital Economy programme brings together the work of EPSRC and that of the Economic and Social Research Council (ESRC), the Medical Research Council (MRC) and the Arts and Humanities Research Council (AHRC).

We invested a further £33 million in 2010/11 in leading projects that aim to transform the way technology improves everyday life, bringing our total investment in DE projects to over £149 million during the 2008-11 Delivery Plan period. Highlights of the programme's activities to date include:

- Investment of £36 million in new Research Hubs that will strengthen our international research standing and maximise the impact from our work by building the UK's capacity in these important areas and by developing the high quality skills needed to realise the benefits of a Digital Economy.

TRANSFORMING HOW WE LIVE IN DIGITAL BRITAIN

The '**dot.rural**' hub at the University of Aberdeen is exploring the contribution digital technologies can make to enhancing key services, generating business opportunities, boosting quality of life and promoting the economic, social and environmental sustainability of rural areas across the UK. Research is based around four themes: access and mobility, healthcare, enterprise and culture and natural resource conservation. The hub brings together researchers from a range of disciplines including computing science, communication engineering, human geography, sociology, environmental science, medicine and transport.

The '**Inclusion through the Digital Economy**' hub at Newcastle University and the University of Dundee aims to tackle social exclusion by making it easier for people to access the life-changing benefits offered by digital technologies. Research will address four fields where digital technologies and the building of a truly inclusive digital economy could deliver major social benefits: connected home and community, accessibility, inclusive transport services and creative industries.

The '**Horizon Digital Economy Research**' hub at the University of Nottingham is helping connect people with digital technology to radically improve the way we live, work, play, and travel. The centre is developing new ways to use the electronic 'footprints' we leave behind whenever we use mobile, internet and other digital technologies, and new ways to use digital technologies to help business and stimulate economic growth.

- Seven Centres for Doctoral Training have been established in the Digital Economy area that will train the next generation of researchers in DE. As at the end of March 2011, 148 students were registered at these centres. Progress made by the CDTs to date will be assessed as part of the general CDT review taking place in 2011.

HEALTHCARE INNOVATION

Centre for Doctoral Training in **Healthcare Innovation** at the University of Oxford: Students at this centre are gaining first-hand experience of how technologies they develop have potential clinical impact via a hospital internship, will develop translational research skills to both accelerate clinical uptake of technologies, and take inventions through the first steps of commercialisation. Students will learn how to design clinical trials, and about innovation/entrepreneurship and will conduct a PhD in information-driven healthcare, personalized modelling in healthcare, or cancer therapeutics and delivery.

- Establishment of a substantial portfolio of work established in key areas supporting the very best academics and creating the next generation of skilled researchers. In addition to the research hubs and CDTs, the DE programme supports nine clusters and a 'Sandpit' network encouraging multidisciplinary working and two Leadership Fellows. Projects supported through EPSRC's leadership of the RCUK's DE programme are having real impact. For example:

'TWITTER-LIKE' TECHNOLOGY COULD MAKE CITIES SAFER

Professor Jon Whittle of Lancaster University is leading a project to develop instant feedback technology that allows the public to voice spontaneous opinions about their surroundings is being tested to help make cities safer. The 'Voice Your View' (vYv) technology allows people to provide feedback about their environment, including how safe they feel. Opinions can be expressed either through public terminals or easy-access software on mobile phones. The system then processes responses to create an instant 'wiki-display' of local issues that will help councils concentrate resources where they are needed most. For example, people might report that they feel unsafe in an area with poor lighting. Or they could express their fears about the visibility of the police in their area.

The novelty of vYv lies in its ability to understand any comment a user makes by using a type of artificial intelligence technique known as natural language processing (NLP), including techniques from corpus linguistics and sentiment analysis. NLP is used to filter, structure and classify the comments and turn it into meaningful data; it looks at the main theme of the comment, such as lighting, and its sentiment — the degree of positive or negative feeling. In this context, the technology has a huge advantage over traditional types of consultation as it allows a large number of views to be accessed quickly in an extremely cost-effective way.

WII-LIKE TECHNOLOGIES MAY HELP STROKE SURVIVORS IMPROVE COMMUNICATION SKILLS

Motion sensing technologies, such as the Nintendo Wii Remote, could be used in the rehabilitation of people with aphasia – a language impairment, commonly caused by a stroke that affects around 250,000 people in the UK. The aim is to develop an affordable, computer-based technology to help stroke survivors, who have limited spoken or written output learn how to 'gesture' independently at home.

PIONEERING RESEARCH COULD MAKE THE INTERNET 100 TIMES FASTER

The six-year 'Photonics HyperHighway' project will bring together world-leading scientists from the University of Southampton and the University of Essex with industry partners, including BBC Research and Development, to pioneer new technologies that could make broadband internet 100 times faster. Announcing the £7.2 million project that is being led by Professor David Payne at the University of Southampton, the Minister for Universities and Science David Willetts said:

"The internet is fundamental to our lives and we use it for a huge range of activities - from doing the weekly food shop to catching up with friends and family. The number of broadband subscribers has grown vastly in the past ten years, and we need to ensure the web infrastructure can continue to meet this demand.

On top of this, the internet industry is worth an estimated £100 billion in the UK, so it is in our interest to make it even better for businesses and help boost economic growth.

The Photonics HyperHighway project has the potential to truly revolutionise the internet, making it much faster and more energy-efficient. The project is also a shining example of the UK's world-leading role in this area of research, and I look forward to the exciting breakthroughs it will bring."

Nanoscience through engineering to application

The RCUK Nanoscience Programme aims to harness the rapidly maturing fields of nanoscience and nanoengineering to promote responsible innovation leading to exciting developments that impact in the areas of energy, healthcare and the environment. Led by EPSRC, the Nanoscience Programme brings together the work of EPSRC and that of the Biotechnology and Biological Sciences Research Council (BBSRC), the Economic and Social Research Council (ESRC), the Medical Research Council (MRC), the Natural Environment Research Council (NERC) and the Science and Technology Facilities Council (STFC).

£39 million

We have invested £39 million in the RCUK Nanoscience programme during this Delivery Plan period.

EPSRC has invested £39 million in the programme. Highlights of the programme's activities to date include:

- The programme has invested £27 million in Grand Challenges projects, established in key areas of healthcare and energy. During 2010/11, the programme funded £5 million on business-led projects in next generation solar harvesting techniques including novel approaches to photovoltaics and catalytic systems for producing fuel from water with the Technology Strategy Board.
- The Programme has established three CDTs based at the universities of Cambridge, Manchester and Bristol- all of which provide highly innovative, exciting training environments that draw on research excellence with a view to producing the skilled and talented researchers needed to address challenging problems that will be of benefit to the UK economy in the 21st century.
- Establishment of a scheme that has opened up state-of-the-art facilities around Britain for use by other academics who are not associated with the facility. This not only provides access to the facilities but also training in the use of the equipment. This scheme has made available world leading nano-scale imaging microscopes that provide unparalleled analytical capabilities and fabrication. Processing and characterisation facilities are also available which allow the construction of structured nano-scale objects.

A plan to embed the RCUK Nanoscience programme into Research Council business will be taken forward in the new Delivery Plan period.

Examples of impact arising from EPSRC's leadership of the Nanoscience through Engineering to Application include:

BULLET TAGGING TO COMBAT GUN CRIME

The development of pollen 'nanotags' that could help tackle gun crime. Invisible to the naked eye, the tiny tags could be coated onto gun cartridges and would then attach themselves to the hands or gloves of anyone who handled them. Some of the 'nanotags' would also remain on the cartridge after it has been fired, making it possible to establish a robust forensic link between cartridges fired during a crime and whoever handled them. This breakthrough has been achieved by a team of chemists, engineers, management scientists, sociologists and nanotechnologists from Brighton, Brunel, Cranfield, Surrey and York universities in collaboration with project partners the Forensic Science Service, BAE Systems and coatings manufacturer Andura.

SAFER BODY ARMOUR FOR REAL LIFE

Researchers funded by the Research Councils UK Nanoscience Programme have found that incorporating nanoparticles into body armour can make it lighter, more flexible and more effective than current body armour. A research team based at the Science and Technology Facilities Council (STFC) Daresbury Laboratory, together with researchers from Tuskegee and Florida Atlantic universities in the USA, are evaluating new nanocomposite materials which can be woven into fabrics to provide greater flexibility as well as better ballistic protection. They have found that incorporating spherical nanoparticles of carbon nanotubes, silicon dioxide or titanium dioxide in a plastic or epoxy matrix offers improved ballistic resistance together with greatly improved flexibility. These new materials are already catching the attention of security services and promise to have wide-ranging potential for protecting society, both at home and abroad.

Healthcare

The aim of our Towards Next-Generation Healthcare programme is to improve the health of UK citizens at all stages of their lives, recognising the challenges and opportunities arising from an ageing population.

The Towards Next-Generation Healthcare programme aims to meet these challenges by building on EPSRC's strong medical engineering portfolio, including collaborations with major healthcare charities and companies, the NHS, and other research councils. This collaborative approach will accelerate the transition from basic research to clinical products and practices – ensuring world-class research changes lives for the better. EPSRC has funded a number of research projects across a broad range of areas including biomaterials, biomechanics, diagnostics, medical devices, orthopaedics, regenerative medicine and wound care. We have also co-funded centres of excellence in cancer imaging and medical engineering.

£34 million was invested by EPSRC in Healthcare projects during 2010/11.

During 2010/11, £34 million was invested by EPSRC in this programme (£211 million during the Delivery Plan period as a whole). Highlights of the programme's activities to date include:

- Establishment of four new cancer imaging centres formed as a result of a successful strategic partnership between EPSRC and Cancer Research UK. Established in 2008 with funding of £50 million, the centres have become focal points for world-class research using a range of imaging techniques including magnetic resonance and positron emission tomography. The research provides healthcare providers with vital information on the effects of therapies and on identifying best treatments for patients. The initiative has also attracted funding from the Medical Research Council and the Department of Health.
- Formation of a £41 million strategic partnership with the Wellcome Trust that has resulted in the funding of four Centres of Excellence in Medical Engineering which will transform the future of healthcare.
- The development of a strategy for collaborative ageing research in the UK between the research councils and health departments to focus on shared issues where there are opportunities to add value through strong cross-sector approaches.
- Funding of Healthcare Partnerships run by the Towards Next Generation Healthcare programme, to establish joint funding streams for high quality engineering and physical science research within academe, that provide a potential route for exploitation within the UK healthcare arena.
- Co-funding of two National Institute for Health Research (NIHR) pilots in Healthcare Technology Co-operatives (HTCs). These HTCs support the development of collaborations between clinicians, academics, patients, users, and industry in clinical areas which have not attracted significant research funding in the past, but which are associated with high levels of patient morbidity.

Examples of impact arising from our investment in healthcare include:

LEARNING FROM OLD BONES TO TREAT MODERN BACK PAIN

The bones of people who died up to a hundred years ago are being used in the development of new treatments for chronic back pain. It is the first time old bones have been used in this way. The research is bringing together the unusual combination of the latest computer modelling techniques developed by EPSRC-funded researchers at the University of Leeds, and archaeology and anthropology expertise at the University of Bristol. Ultimately, it will also be possible to use the models to pinpoint the type of treatment best suited to an individual patient. Minister for Universities and Science David Willetts said:

"....this investment could significantly improve quality of life for millions of people around the world, so it's fantastic that the research is being carried out in the UK. It's also truly fascinating that old bones and very new technology can come together to deliver benefits for patients."

50 ACTIVE YEARS AFTER 50

A team of EPSRC-funded researchers led by Professor John Fisher at the University of Leeds are developing new technologies that will produce replacement body parts to help people remain active for longer. The project entitled: '50 active years after 50' is focused on regenerative therapies such as joint and organ replacements, that will help to ensure people can live as actively up to 100 years of age as they did up to 50 years. The project, which has attracted extensive press coverage, has received funding through The Wellcome Trust and EPSRC Centres of Excellence in Medical Engineering as well as the EPSRC Innovation and Knowledge Centres initiative. It brings together researchers in engineering, computing, chemistry, physics, biology, dentistry and medicine in collaboration with industry partners and practising doctors from around the UK.

Some of the research team in the laboratory.

NEW SPINAL IMPLANT WILL HELP PEOPLE WITH PARAPLEGIA TO EXERCISE PARALYSED LIMBS

A team of EPSRC-funded Engineers led by Professor Andreas Demosthenous from University College London have developed a new type of microchip muscle stimulator implant that will enable people with paraplegia to exercise their paralysed leg muscles.

It is the first time that researchers have developed a device of this kind that is small enough to be implanted into the spinal canal and incorporates the electrodes and muscle stimulator in one unit. The implant is the size of a child's fingernail. The devices could also be used for a wide range of restorative functions such as stimulating bladder muscles to help overcome incontinence and stimulating nerves to improve bowel capacity and suppress spasms.

EPSRC's Contribution to Other Cross-Council Themes

Living With Environmental Change

We have contributed to the 'Living with Environmental Change' (LWEC) theme by working with the other research councils and partners in at least nine government departments to develop and support high-quality research programmes which will tackle environmental change and the societal challenges it poses. The research we have funded will provide a firmer basis for people to deal with the unprecedented changes that the world will face over the next century.

EPSRC has led one of the LWEC themes to make infrastructure, the built environment and transport systems resilient to environmental change and develop more sustainable, less energy-intensive systems and approaches that are socially acceptable, economically advantageous and more environmentally harmonious. As a part of this theme, £6 million was committed in 2009 to a programme of research titled Adaptation and Resilience to a Changing Climate. This is concerned with adaptation and resilience to climate change of existing buildings and infrastructure systems in the urban environment. A further £3 million was invested in 2010/2011 to facilitate the interdisciplinary collaborations necessary to carry out research in this area.

Global Uncertainties

EPSRC continues to contribute to Global Uncertainties (a cross-Research Council programme led by ESRC) and this year we have taken a lead on the programme's cybersecurity theme.

We have identified a large and vibrant community of researchers with the skills and knowledge necessary to ensure that the UK's citizens, communities and businesses are safe and have the confidence to get the most from cyberspace. We are working with GCHQ and business partners to identify the UK's Centres of Excellence in cybersecurity research. Further activities include the development of a Research Institute in the 'Science of Cybersecurity' and the publication of a green paper for cybersecurity research. Over the Delivery Plan period, we have contributed nearly £30 million in support of innovative research within the Global Uncertainties theme. We have also supported activities led by other research councils to ensure that the contribution that engineering and physical sciences researchers can make to this theme is fully realised.

Lifelong Health And Wellbeing

EPSRC has contributed to the "Ageing" theme by working with the other research councils to develop and support high-quality research programmes which provide substantial longer term funding for three interdisciplinary centres. The new centres drew on the individual and combined strengths of the research councils, targeting four principal areas:

- Mental capital, mental health and wellbeing;
- Markers for the ageing process;
- Interactions between determinants of healthy ageing;
- Interventions that promote healthy ageing and independence in later life.

The Centre for Brain Ageing and Vitality at Newcastle University is one of three prestigious 'lifelong health' research centres established to strengthen multidisciplinary and collaborative research in ageing funded through the Lifelong Health and Wellbeing programme. The key objectives of the Centre are to explore the mechanisms involved in brain ageing and the mechanisms specifically relating to musculoskeletal and brain ageing, with particular emphasis on the effects of diet and exercise. The Centre provides a high quality environment for research training, and is committed to building research capacity by appointing young scientists whose major focus is ageing research.

Research Fellow Laura Greaves, culturing mouse embryonic stem cells with pathogenic mitochondrial DNA mutations to study their functional effects.

Public engagement with research

This year, we have continued to build on our programme focused on engaging researchers with the public to share exciting research results, inspire the young and hear and act upon the public's views on the future of science. By March 2011, the EPSRC Public Engagement Programme had invested £2.1 million in joint research council projects run by the RCUK Public Engagement team examples of which include:

- the 'Beacons' project which helps researchers overcome some of the barriers to becoming active in the public engagement arena;
- the RCUK Researchers in Residence scheme that enables early stage researchers to enthuse the young about science and engineering.

In addition to the £2.1 million investment made as part of the RCUK's Public Engagement Programme, we have invested £4.98 million in 2010/11 in initiatives which directly support a thriving programme of public engagement by our research community. Highlights from the programme for this year include:

Bloodhound SSC

4,000

Over 4,000 schools are registered on the Bloodhound Education Programme.

As reported in our Annual Report 2009/10, the Bloodhound SSC engineering adventure, launched in 2008, provides us with a unique opportunity to inspire the next generation of scientists and engineers. The National Foundation for Educational Research provided a very positive audit report on the first year's progress, confirming that the project's activities and partners were delivering inspirational activities and achieving the project's aims. In 2010/11, the Bloodhound Education Programme has continued to grow and to date over 4,000 schools have registered their interest in the project and numerous presentations have been given by BLOODHOUND Education Ambassadors to other groups and professional institutions, taking the project into the heart of the community and society. Most recently, BLOODHOUND SSC was a major attraction at the three-day National Big Bang Fair at the ExCel Centre in London as a prelude to National Science & Engineering Week. The event attracted over 25,000 visitors.

Synthetic biology dialogue

In 2009, EPSRC and BBSRC (with support from Sciencewise Expert Resource Centre) undertook a major new public dialogue activity on the public's views and attitudes on synthetic biology. The findings were published on the 14 June at an event in London to launch the report of Synthetic Biology Public Dialogue.

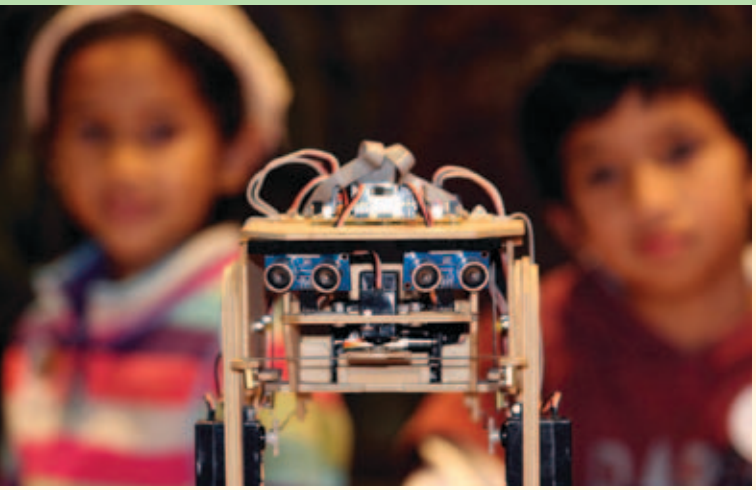
Highlights of the findings include:

- The public see significant opportunities from the application of synthetic biology and hope that it could help society to address major challenges such as climate change, energy security and serious diseases.
- There is uncertainty about what synthetic biology will lead to and where it is going. There are also concerns that it may be progressing too quickly when the long-term impacts are unknown.
- The public are keen to see effective international regulation and control of synthetic biology, particularly concerning the uncontrolled release of synthetic organisms into the environment.
- The motivation of scientists in this field is important. The public are concerned that curiosity-driven researchers may proceed too quickly and they must consider the wider implications of their work.
- The Research Councils were also seen to have a clear role in developing the capabilities for scientists to think through responsibilities in this new area of research.

The Dialogue report was considered by the two Research Councils who will include its findings in their strategic planning on future funding and policy around synthetic biology. As synthetic biology is in its early stages it will be important to ensure scientists have continued dialogue with the public to make sure its development reflects wider public concerns and aspirations.

The ethics of robots

As part of an ongoing agenda to promote responsible innovation EPSRC's Societal Issues Panel commissioned a three day event to explore some of the key ethical and societal issues potentially presented by robotics research. The event, organised in conjunction with AHRC, which took place in September 2010, brought together researchers from across the robotics community with key researchers from the arts , humanities, law and social sciences to discuss a number of ethical concerns resulting from the increased use of robotics into everyday applications. The 'Robotics Retreat' challenged the 14 delegates to identify the key issues and suggest how the community, including EPSRC, should respond. The extremely open discussion was stimulated and provoked by guest speakers, by role play around a hypothetical scenario and with public engagement through a Café Scientifique. Vivienne Parry, science broadcaster and lead facilitator at the Retreat said "This was an extraordinary event and the involvement of arts and humanities made a great difference to the quality and range of discussion". Key findings and outputs from the event can be found on EPSRC's web site.



Children enjoying the robots at a Walking with Robots event.

WALKING WITH ROBOTS

The EPSRC-funded 'Walking with Robots' team was awarded The Royal Academy of Engineering Rooke Medal for the Public Promotion of Engineering for their programme that enabled the public to engage with advanced robotics in highly accessible ways. The team put together a network of researchers covering the most exciting areas of intelligent robotics research in the UK, including artificial consciousness, biomimetic (animal-like) robots, evolutionary and adaptive robots, climbing and walking robots, space and planetary robotics, swarm robotics and socially interactive robots. More than 80,000 people have attended Walking with Robots events including Robotic Visions, a nationwide programme of five conferences that fostered two-way discussion between young people and robotics researchers. Walking with Robots enjoyed extensive regional, national and international media coverage, one of the highlights of which was Professor Noel Sharkey appearing on the BBC's Blue Peter programme.

High profile champions

EPSRC's Senior Media Fellows have continued to communicate research topics to millions of the wider public through the media and major public events. In 2010, we appointed a further Senior Media Fellow, Professor Steve Haake, Head of Sports Engineering at the Sheffield Hallam University, bringing the total number to eight. His aim is to use the high levels of interest in the 2012 Olympic Games to raise the profile of science through the media. Dr Andrea Sella has also been awarded an extension to his Senior Media Fellowship.

Another of our Senior Media Fellows, Dr Mark Miodownik, delivered the 2010 Christmas lectures at the Royal Institution. The sold-out events, entitled 'Why elephants can't dance', 'Why chocolate melts and jet planes don't' and 'Why mountains are so small', explored the extraordinary world of size and scale in the three-part lecture series called 'Size Matters'. The lectures were broadcast on BBC Four in December 2010.

This builds on our success the previous year when a BBC series presented by prominent Senior Media Fellow Professor Jim Al-Khalili was nominated for a BAFTA in the "Specialist Factual" category. Another of Jim's BBC series' 'The Secret Life of Chaos' won the "Best Film" award at the International Science Film Festival in Athens.

EPSRC's future approach

EPSRC places great importance on the sponsorship of high quality public engagement. We recognise that public engagement is inherently linked with research and during 2010 we made plans to embed support for Public Engagement through our research and training investments. This approach will enable us to build a high quality portfolio that is more closely linked to the research we fund, encompasses a greater section of the research community and ultimately will have the potential for much greater impact than the current dedicated funding scheme.

Driving efficiency

We have already achieved a saving of £160 million by reducing the proportion of budget spent on administration; growing the co-funding of research; reprioritising funding to target new and emerging opportunities; and implementing more efficient practices.

One of these practices has been to manage the demand for research funds, which has led to increased efficiency of the grant application system and influenced university behaviour, encouraging applicants and senior university management to think more strategically about, and therefore submit fewer, research applications.

The introduction of our demand management policies has resulted in a sustained improvement in success rates such that across the research portfolio our average success rate is now at 36 percent and fully in line with the target we had established for the policy.

During 2010/11 the Chancellor announced £6.2 billion of efficiency savings of which £100 million was allocated to BIS. These savings were explicitly targeted at Administration costs and EPSRC's share of those targets was £0.5 million. We delivered these savings by reducing staff numbers, and the amount we spend on travel and marketing and communications. In addition we have introduced control processes to ensure that expenditure on consultancy as well as IT projects are properly authorised in line with the revised requirements.

The average number of staff employed during the year fell to 274 from 311 in the previous year. Overall the proportion of spend on administration was 2.6%.

We have continued to look for greater efficiency through increasing co-funding of research and training. In that way we are able to leverage our investment. EPSRC achieved its target of £16 million in co-funding.

In June 2010 Sir William Wakeham published his report, *Financial Sustainability and Efficiency in Full Economic Costing of Research in UK Higher Education Institutions*, on the implementation of the recommendations made by the Full Economic Costing (fEC) Review published in April 2009. The report confirmed the importance of the higher education sector being transparent and effective in the use of public funds. It made several key recommendations on how Higher Education Institutions (HEIs) could reduce their indirect cost rates as well as encouraging the more intensive use of existing and new assets across the research base.

All savings made will remain within the ring-fence to be reinvested within science and research.

The savings will be achieved by:

- introducing efficiency groups;
- Introducing an efficiency factor for indirect costs;
- more intensive utilisation of assets; and
- reducing rates of indexation for years 2011/12 onwards.

NET RESOURCE AND CAPITAL OUTTURN

Net Resource and Capital Outturn Statement 2010/11

Resource Expenditure	Target	Provisional Outturn	Actual Variance (£m)	Actual Variance (%)
Net Research Expenditure	459.22	483.31	-24.09	-5%
ETI Expenditure	7.66	6.09	1.57	20%
Net High Performance Computing Expenditure	6.06	6.10	-0.04	-1%
Net Facilities Expenditure	3.68	3.47	0.21	6%
Net Studentships Expenditure	209.02	198.51	10.51	5%
Net Fellowships Expenditure	60.90	53.85	7.05	12%
Net Operations Expenditure	26.30	27.74	-1.44	-5%
Sub-Total Near Cash Expenditure	**772.84**	**779.07**	**-6.23**	**-1%**
Non Cash Expenditure	6.93	6.37	0.56	8%
TOTAL NET RESOURCE EXPENDITURE	**779.77**	**785.44**	**-5.67**	**-1%**
Total Capital Expenditure	**61.65**	**51.86**	**9.79**	**16%**
TOTAL NET EXPENDITURE	**841.42**	**837.30**	**4.12**	**0%**

The Engineering and Physical Sciences Research Council (EPSRC) was established by Royal Charter on 16 December 1993 and began operations on 1st April 1994. EPSRC inherited part of the programme previously funded by the Science and Engineering Research Council (SERC).

EPSRC receives its principal funding through the Grant in Aid from the Department for Business, Innovation and Skills (BIS). The amount received in 2010/11 was £817m (2009/10 £799m). Income was also received from other Research Councils, Government Departments and other bodies.

The Accounts have been prepared in accordance with the Science and Technology Act 1965 and the Secretary of State directions made thereunder.

Mission

The mission of EPSRC as set out in the 1993 Government White Paper on Science, Engineering and Technology *"Realising our Potential"* is:

to promote and support high quality basic, strategic and applied research and related postgraduate training in engineering and the physical sciences (Chemistry, Physics and Mathematics), placing special emphasis on meeting the needs of the users of its research and training outputs, thereby enhancing the United Kingdom's industrial competitiveness and quality of life.

EPSRC's **objectives**, as defined in its Charter, are:

a) to promote and support high quality basic, strategic and applied research and related post-graduate training in engineering and the physical sciences;

b) to advance knowledge and technology and provide trained scientists and engineers to meet the needs of users and beneficiaries (including the chemical, communications, construction, electrical, electronic engineering, information technology, pharmaceutical, process and other industries), thereby contributing to the economic competitiveness of the United Kingdom and the quality of life of its citizens; and

c) to provide advice, disseminate knowledge, promote public understanding, encourage public engagement and communicate research outcomes in the fields of engineering and the physical sciences.

EPSRC's Strategic Objectives are:

Delivering Impact

EPSRC funds long-term research which will have impacts over the next 10 to 50 years.

Our primary criterion for funding research will be excellence, as it always has been.

Working closely with our partners in universities we will make sure that this research is able to have the maximum impact for the health, prosperity and sustainability of the UK, as early as possible.

Shaping capability

EPSRC will play a more active role in shaping the research base to ensure it delivers high quality research for the UK, now and in the future. In doing so we will work closely with our partners in universities to understand where the strengths of the research base are, and where we have gaps.

Developing Leaders

We will commit greater support to people rather than projects, and make sure that researchers who are truly world-leading are properly supported.

Financial Review of the Year

The Accounts for the year ended 31st March 2011 record net expenditure for the year of £860m (2009/10 £854m). Government Funds at 31st March 2011 showed a deficit of £25m (2009/10 £8.7m). The net deficit reflects the timing difference between the recognition of the liability and the payment in future accounting periods. Capital Expenditure was £4.1m (2009/10 £13.8m). In 2009/10 £9.7m related to the SSC asset in course of construction.

Research Expenditure increased to £550m (2009/10 £530m) with Postgraduate Training increasing to £204m (2009/10 £199m).

Total Grant in aid drawn down was £817m (2009/10 £799m).

Funding from other bodies went down to £28.1m (2009/10 £34.7m) as a result of reduced co-funding from other Research Councils.

The Statement of Financial Position records receivables of £66.5m (2009/10 £63.9m). Current Liabilities increased to £120.6m (2009/10 £105.6m) both of these increases have arisen due to increased accrued income and expenditure as a result of processing backlogs associated with the introduction of the new grants system, Siebel.

Trends and factors affecting future performance

The principal factor affecting our ability to fund scientific research is the availability of funds provided as Grant in Aid from our sponsoring Department, BIS. As explained elsewhere we have already made substantial commitments to future years arising from the award of Research and Training grants. EPSRC's funding has to meet those costs as well as new grants. On 20 December 2010 David Willetts, Minister for Universities and Science, announced the EPSRC's financial allocations for 2011-12 through to 2014-15. The EPSRC considers that these allocations, while slightly reduced, will not materially affect the operations of the EPSRC.

Going Concern

EPSRC's position with regard to Going Concern can be found at Note 1b (i) of our Accounting Policies.

Shared Services Centre

The seven Research Councils have established a Shared Services Centre (SSC), based in Swindon. The SSC provides finance, grants, human resources, information systems, procurement and payroll operational services to each of the Councils and their Institutes. The Councils have set up the SSC with the aim of achieving procurement benefits through sharing and standardising processes. The SSC has been incorporated as RCUK Shared Services Centre Limited and is currently providing services to all Councils. EPSRC migrated the Human Resources, Payroll, Finance and Operational Procurement functions in 2009 and grants in 2010.

EPSRC previously acted as 'host' for the Shared Services Centre project on behalf of all Councils and had contracted for the development and establishment of the Shared Services Centre. During 2009 the responsibility for the project was transferred to RCUK Shared Services Centre Limited. For legal reasons one contract with Oracle remains with EPSRC and the costs subsequently recharged to the project. The Councils have agreed to share all these costs and EPSRC's agreed share is 8.24%.

EPSRC has acquired B shares to the value of £5.1m to reflect its Joint Venture investment in the Shared Services Centre. B shares convey ownership rights to the holder, including any distribution or proceeds from sale of the Shared Services Centre.

The transition to a Shared Services Centre is referred to in our Statement on Internal Control.

Payment Policy

In accordance with Government guidelines, it was the policy of the EPSRC in 2010/11 to seek to comply with the CBI Prompt Payers' Guide that states that commercial invoices should be paid within 30 days of the presentation of a valid demand for payment. EPSRC is now moving towards reducing the time taken to make payment to 5 days in line with revised Government policy.

During 2010/11 the majority of payments by EPSRC were made to predetermined scheduled dates. Payment of commercial invoices, as defined by the CBI, was monitored throughout the year. 81% of all invoices were paid within 30 days of receipt, and 51% of those within 5 days of receipt.

In November 1998, the Late Payment of Commercial Debts (Interest) Act came into force, providing small businesses with a statutory right to claim interest from large businesses (and all public sector bodies) on payments that are more than 30 days overdue. Amended legislation (the Late Payment of Commercial Debts Regulations 2002) came into force on 7th August 2002 providing all businesses, irrespective of size, with the right to claim statutory interest for the late payment of commercial debts. No such claims were received during the reporting year.

Details of the Prompt Payers' Guide can be found at www.payontime.co.uk.

Holding of Public Sector Information

EPSRC have complied with the cost allocation and charging requirements set out in HM Treasury and Office of Public Sector Information guidance, where they are appropriate. However, the information EPSRC holds is exempt from the requirements of "*The Re-use of Public Sector Information Regulations 2005*" as specified in para 5 (3) of the regulations.

Personal Data

There have been no personal data related incidents in 2010/11. EPSRC will continue to monitor and assess its information risks in order to identify and address any weaknesses and ensure continuous improvement of its systems.

Resource Audit Committee

The Resource Audit Committee (RAC) includes three members of Council together with other members from the commercial and academic communities. RAC meets three times a year to review corporate governance, risk management, internal and external audit matters, efficiency and the Council's Accounts.

Financial Risk Management and Going Concern

Accounting policies in respect of financial risks and going concern are considered in notes 1p and 1b (i) respectively.

Equality of Opportunity

The EPSRC has a policy of non-discrimination against people on the grounds of gender, age, religion, religious beliefs, disability, race or sexual orientation. This applies in recruitment, training, promotion and to all aspects of employment within EPSRC.

Employee Engagement

Investors in People

EPSRC retains its Investors in People status. Our next review will be due in November 2012.

Sunday Times "Best Places to Work in The Public Sector"

For the second year running, EPSRC entered the annual Sunday Times "Best Places to Work" employee engagement survey. 193 of 304 employees surveyed completed an on-line questionnaire in November 2010, and EPSRC also completed an organisational questionnaire. The survey gauges the overall level of engagement in EPSRC against eight headings including My Manager, Fair Deal, and Personal Growth.

This year EPSRC were entered in the Public and Third (i.e. Charitable) Sector. Our overall Best Companies Index Score declined by 1% compared with last year's score, but we retained our status as "One to Watch".

The Making a Difference Team

The Making a Difference Team (MaDT) continued as an autonomous, self-directed team of employees which determines its own agenda based on input from colleagues. The team has direct access to the CEO. The team's purpose is 'Giving everyone the opportunity to engage with and contribute to initiatives that change the organisation for the better'.

Among the activities of the Team this year was the HOW Event in April 2010, which invited scientists into Polaris House to showcase some of the exciting research developed with EPSRC support, for the benefit of EPSRC employees. The event aimed to engage employees in sharing a common understanding of what EPSRC is trying to achieve, and how their individual objectives contribute. In particular, the event aimed to give employees not in science-focused roles an increased understanding of the direct contribution of their work to UK engineering and physical sciences, and its impact on the economy and society.

Mindful Employer

EPSRC has renewed the Mindful Employer charter indicating that the organisation continues to be positive about mental health. This is a voluntary charter and indicates EPSRC's commitment to improving the working lives of its employees.

Staff Sick Absences

During 2010/11 a total of 1,950 days were lost due to staff sickness absences, representing 2.75% of total full time equivalent working days. EPSRC's sick absence data is as follows:

Average number of staff during the year	274
Total days lost to sickness	1,950
Average working days lost	7.1

Exclusion of long term absences i.e. absences greater than 60 days the average working days lost is 4.7.

The average level of employee absence in the UK in 2010 was 7.7 days; 9.6 days in the public sector. (Absence Management 2010, Annual survey report from the CIPD).

The most common causes of absence are shown below:

Cause	Number of Days Lost
Cold/Flu	300
Gastrointestinal	331
Musculoskeletal	106
Headache/Migraine/Concussion	64
Total	801

Employee Involvement

Employee involvement in management and policy matters has continued through ongoing dialogue between management, staff and Trade Unions. The HR Business Partner group leads on these activities, and will continue to engage with all staff on an ongoing basis.

Pension Liabilities

As explained in Staff note 12 (d) to the Accounts, the RCPS is an unfunded multi-employer defined benefit State scheme which is funded on a pay-as-you-go basis: contributions are set at a level that is expected to be sufficient to pay the required benefits falling due in the same period; future benefits earned during the current period will be paid out of future contributions.

Environmental Policy

EPSRC is committed to following the Joint Research Council Environmental Policy Statement which calls for:

- compliance with all relevant legislation;
- minimise the adverse impacts of new buildings and refurbishments;
- make efficient use of natural resources;
- operate effective arrangements for waste disposal and recycling;
- promote effective environmental supply management;
- work with staff to promote more economic forms of transport; and
- provide appropriate information and training to new staff.

EPSRC attends the cross-Research Council Environmental Group which meets quarterly to discuss the environmental issues that affect Polaris House. Polaris House has ISO 14001 accreditation for the control of the impact to the environment of all the activities conducted on the Polaris House site. In order to satisfy and maintain the required standards a number of environmental targets and impacts have been agreed for review, assessment and improvement. These are:

- Waste Reduction;
- Landscaping Enhancement;
- Green Purchasing;
- Reduction of CO_2/energy emissions; and
- Green Transport.

Environmental issues are communicated to all staff through the cross-Research Council Environmental Awareness newsletter.

Auditors

The Accounts of the EPSRC are audited by the Comptroller and Auditor General under the terms of Paragraph 3(3) of Schedule 1 of the Science and Technology Act 1965. The cost of the statutory audit in 2010/11 was estimated to be £80k (2009/10 £111k), all of which related to the audit of the year end accounts.

So far as the Accounting Officer is aware, there is no relevant audit information of which EPSRC's auditors are unaware. The Accounting Officer has taken all the steps that he ought to have taken to make himself aware of any relevant audit information and to establish that EPSRC's auditors are aware of that information.

MEMBERSHIP LISTS

Council Membership

The following were members of EPSRC Council in 2010/11

Chairperson

Mr J Armitt, CBE, FREng	Olympic Delivery Authority

Chief Executive

Professor D Delpy, FREng, FRS	Engineering and Physical Sciences Research Council

Members

Professor A Anderson, OBE	University of Glasgow
Mr M Carr, FREng	Independent
Professor B Collins, CB, FREng	Department for Transport/Department for Business, Innovation and Skills
Professor L Gladden, CBE, FRS, FREng	University of Cambridge
Dr A Herbert, OBE, FREng,	Microsoft Research Ltd
Professor T Pedley, FRS	University of Cambridge
Dr M Roberts	Guidance Ltd
Professor J R Sambles, FRS	University of Exeter
Professor C M Snowden, FRS, FREng	University of Surrey
Professor P-L Viollet	EDF
Professor Sir W Wakeham, FREng	Independent
Dr D Watson	IBM UK Labs Ltd
Professor M Welland FRS, FREng	Ministry of Defence
Professor Lord R Winston	Imperial College London
Dr A Wood	Pfizer

In attendance:

Representatives from Science and Research Group, Department for Business, Innovation and Skills: Mr J Neilson and Mr J Clayton.

membership lists continued

EPSRC Resource Audit Committee (RAC) Membership 2010-11

Name	Organisation
Professor Sir William Wakeham, FREng, **Chair**	Independent
Mr M Carr, FREng	Independent
Mr P Douglas	Independent
Ms R Drinkwater	University of Warwick
Professor J R Sambles, FRS	University of Exeter

Technical Opportunities Panel (TOP) Membership 2010-11

Name	Organisation
Professor J Fisher, CBE, **Chair**	University of Leeds
Professor M Anderson	University of Bristol
Professor M Calder, OBE, FRSE	University of Glasgow
Professor B Collins, FREng	Department for Transport/Department for Business, Innovation and Skills
Professor N Halliwell, FREng	Loughborough University
Professor D Hand	Imperial College London
Professor A Mackenzie	University of St Andrews
Professor W M Rainforth	University of Sheffield
Professor P Raithby	University of Bath
Mrs A Starr	GE Aviation
Professor R Wallace, FRSE	University of Edinburgh
Professor I H White	University of Cambridge
Professor R Williams	University of Wales, Swansea

User Panel (UP) Membership 2010-11

Name	Organisation
Dr D Watson, **Chair**	IBM UK Labs Ltd
Ms J Bevis	British Retail Consortium
Mr J Boyer	Independent
Ms L Deeming	Corus Group Plc
Dr M Farrimond	UK Water Industry Research
Professor N Jackson	Ricardo plc
Mr K Mitchell	Black Rock Studios
Professor P Nelson, FREng	University of Southampton
Mr I Risk	EADS Ltd UK
Mr M Sadler	HP Systems Security Lab
Mrs J Wilbraham	AstraZeneca
Dr D York, FREng	Procter and Gamble Ltd

Societal Issues Panel (SIP) Membership 2010-11

Name	Organisation
Professor Lord Robert Winston, **Chair**	Imperial College London
Professor J Al-Khalili, OBE	University of Surrey
Mrs A Charlesworth	The Nuffield Trust
Professor R A L Jones, FRS	University of Sheffield
Professor PM Macnaghten	Durham University
Professor J Petts	University of Southampton
Mr T Radford	Independent
Professor T Rodden	University of Nottingham
Professor K Sykes, OBE	University of Bristol
Professor PL Younger, FREng	Newcastle University

REGISTER OF INTEREST

EPSRC Council, TOP, UP RAC & SIP Members' Register of Interest 2010/2011

Name	EPSRC Bodies	University interest	Industry interest	Other Government departments	Other
Professor Jim Al-Khalili University of Surrey	Societal Issues Panel	Co-investigator STFC Nuclear Physics rolling grant EPSRC Senior Media Fellowship Co-Investigator on EPSRC COMPASSS grant	None	None	Senior Advisor on science and technology to British Council Trustee & member of Council of British Science Association Member of Royal Society Equality and Diversity Awareness Committee
Professor Anne Anderson University of Dundee University of Glasgow (wef 16/8/10)	Council	Vice Principal Vice Principal	None	None	None
Professor Malcolm Anderson University of Bristol	Technical Opportunities Panel	None	None	None	Organisation of Eastern Caribbean States
Mr John Armitt Olympic Delivery Authority	Council (Chair)	Professor J Petts, Birmingham University (Sister) Professor G Petts, Westminster University (Brother-in-Law)	Berkeley Homes, non-executive post Chair, Olympic Delivery Authority PriceWaterhouseCoopers Siemens	None	None
Ms Jane Bevis (nee Milne) British Retail Consortium	User Panel	None	British Retail Consortium Non-exec of On Pack Recycling Label Ltd (subsidiary of the BRC) (March 09) Non-exec of Skillsmart Retail (sector skills council) (Sept 09)	None	Institute of Directors Royal Society for the Encouragement of Arts, Manufacturers and Commerce Business Advisory Panels of both DEFRA and the Home Office Sounding Panel, UK Climate Impacts Programme
Mr Jack Boyer Independent	User Panel	Chair, Southampton Asset Management (Southampton University)	Chair, Ilika Ltd, Chair, iQUR Ltd, Chair, Altrika Ltd	None	Trustee, Forum for Future Insead UK & Int'l Council Trustee — Godolphin & Latymer School
Professor Muffy Calder University of Glasgow	Technical Opportunities Panel	Associate Dean (Research) Mathematical and Information Sciences	Speciality chemicals industry (indirect interest through husband)	None	Chair, UK Computing Research Committee Chair, BCS Academy of Computing Research Committee
Mr Mike Carr Independent	Council Resource Audit Committee	None	British Telecom PLC Share Holder	Non Executive Director of Ordnance Survey	Vice President and Trustee of IET

register of interest continued

Name	EPSRC Bodies	University interest	Industry interest	Other Government departments	Other
Mrs Anita Charlesworth Dept for Culture, Media & Sport	Societal Issues Panel	None	None	Chief Analyst and CSA DCMS til 9/10	Chief Economist The Nuffield Trust Vice Chair — NHS Islington Member British Academy Policy Centre Advisory Board Trustee Tommy's the baby charity
Professor Brian Collins Dept for Transport/BIS	Technical Opportunities Panel Council	None	Director, Europium Consulting	DFT BERR Director — ITSO Ltd (DfT)	None
Ms Lianne Deeming Tata Steel (was Corus Group plc)	User Panel	None	TTL Group Corus Group Plc	None	None
Professor David Delpy EPSRC	CEO, EPSRC	None	None	Member of Healthcare Innovation Council from 2007	Chair, Royal Society URF Panel (Aii) Board member Energy Technologies Institute from 2008 Member TSB Strategic Advisory Group Council member, Royal Academy of Engineering
Mr Peter Douglas Independent	Resource Audit Committee	None	None	None	None
Ms R Drinkwater	Resource Audit Committee	University of Warwick Director of several university subsidiary companies	None	None	Member of BUFDG Executive
Dr Mike Farrimond UK Water Industry Research	User Panel	Member Birmingham University CERT Advisory Board Project Board member - Mapping the Underworld, Universities of Bath, Leeds, Sheffield Birmingham, Southampton Board member, Oxford University Environmental Sustainability KTN	Director, UK Water Industry Research President, European Water Technology Platform Board member — Global Water Research Coalition	None	Treasurer, International Water Association
Professor John Fisher University of Leeds	Technical Opportunities Panel	Deputy VC, Leeds University Chair N8 University, Regenerative Med Centre Committee member White Rose Universities, BITEG	Director Tissue Regenix Director BITECIC Ltd DePuy International, consultant/major sponsor	Healthcare KTN	None
Professor Lynn Gladden University of Cambridge	Council	Pro Vice-Chancellor Research	Unilever — Consultant Major sponsor: Johnson Matthey, Schlumberger Shell Chair of Chem Eng (Dept no longer has links with Shell)	None	National Physical Laboratory, member of NPL Royal Society/ Royal Academy of Engineering Advisory Group to NPL

register of interest continued

Name	EPSRC Bodies	University interest	Industry interest	Other Government departments	Other
Professor N A Halliwell Loughborough University	Technical Opportunities Panel	F/T employee Loughborough University Visiting Professor Southampton University	None	None	None
Professor David Hand Imperial College London	Technical Opportunities Panel	Honorary Visiting Professor, Brunel University Awarded EPSRC Research Grants Imperial College (leave of absence)	Chief Scientific Advisor: Winton Capital Management Consultancy work on ad hoc basis	UKSA Committee for Official Statistics	President, Royal Statistical Society
Dr Andrew Herbert Microsoft Research Ltd	Council	Fellow, Wolfson College, Cambridge Life member, Cambridge University Computer Laboratory "Cambridge Ring" alumni network Microsoft and Microsoft Research — many strategic research investments/ collabs with UK Universities	Chairman, Microsoft Research EMEA, Non-executive board member, Member, Executive Director, Herbert Aviation Ltd	None	Member UK Computing Research Committee Independent expert, UK Defence Scientific Advisory Committee
Professor Neville Jackson Ricardo plc	User Panel	Visiting Professor University of Brighton Loughborough University (Centre of Excellence for Low Carbon and Fuel Cell Tech (CENEX))	Chair, Low Carbon Vehicle Partnership (funded by BIS & DfT) Member, UK Automotive Technology Council	None	Steering Group Member, European Road Transport Research Advisory Council (ERTRAC) Programme Review Board, European Council for Automotive R&D (EUCAR)
Professor Richard Jones University of Sheffield	Societal Issues Panel	Pro-Vice Chancellor, Research and Innovation, University of Sheffield	None	None	None
Professor Andrew Mackenzie University of St Andrews	Technological Opportunities Panel	EPSRC	None	None	Handful of shares (< 5 in HSBC, AVIVA) Foreign Associate, Canadian Inst for Advanced Research Review Editor, Science Magazine
Professor Phil Macnaghten Durham University	Societal Issues Panel	BMRB (partner on Sciencewise-ERC Science and Public Trust project) Co-Investigator on ESRC project on Responsible Innovation	None	None	None

register of interest continued

Name	EPSRC Bodies	University interest	Industry interest	Other Government departments	Other
Dr Kenny Mitchell Black Rock Studio (Disney)	User Panel	UCL, Bath, Bournemouth engineering doctorate collaborations. Napier University PhD visualization collaboration. Edinburgh University speech research letter of support. Cambridge student projects and supporters club. ETH Zurich, CMU collaborations. And further UK University collaborations, but no official advisory roles as yet.	None	None	None
Professor Philip Nelson University of Southampton	User Panel	Deputy VC Southampton University Holdings Ltd Southampton University Consulting Ltd ECS Partners Ltd Southampton Asset Management Ltd Southampton University Science Park Ltd Southampton Innovations Ltd	Adaptive Audio Ltd, Director and Shareholder Opsodis Ltd, Director	None	None
Professor Timothy Pedley University of Cambridge	Council Chair, Steering Committee, EPSRC International Review of Mathematical Sciences 2010	Cambridge University, Emeritus position from 1 October 2009	None	None	Chair, Applied Mathematics subpanel, 2008 Research Assessment Exercise Member, various Royal Society committees Council member, Institute of Maths and its Applications President, International Union of Theoretical and Applied Mechanics (2008-2012)
Professor Judith Petts University of Southampton	Societal Issues Panel	University of Southampton Professor G Petts (Husband) VC, University of Westminster Mr J Armitt (Brother) Chair EPSRC	Member, Advisory Board Veolia Environmental Sci Mr J Armitt (Brother) Chair, Olympic Delivery Authority	Member DIUS Science Wise Expert Resource Centre Steering Group	None
Mr Tim Radford Independent	Societal Issues Panel	None	The Guardian - retirement pension and fees for editorials, reviews and columns HarperCollins The Address Book By Tim Radford	Euro Science Foundation American Association for Advancement of Science Science Museum British Council UN ISDR secretariat	Science Museum Smith Centre Cambridge Science Festival Royal Geographical Society

register of interest continued

Name	EPSRC Bodies	University interest	Industry interest	Other Government departments	Other
Professor Paul Raithby University of Bath	Technical Opportunities Panel	EPSRC, Loughborough University, Trinity College Dublin Science Foundation of Ireland, Cambridge Crystallographic Data Centre, Daresbury Chemical database service	BT Murray International Trust Barclays Bank Whitbread plc Santander	Royal Society of Chemistry STFC	None
Professor (W) Mark Rainforth University of Sheffield	Technical Opportunities Panel	Head of Department elect, Materials Science and Engineering, The University of Sheffield; External examiner Oxford and Surrey Universities; Research collaboration, Universities of Manchester and Leeds	Director of Mercury Centre for Innovative Manufacturing, interacting with Yorkshire based SMEs; Consultant to Wiggins Alloys, Sheffield Forgemasters, Tata Steel, Seimens VAI	REF Panel member	Vice President, Royal Microscopical Society
Mr Ian Risk EADs UK Ltd	User Panel	Collaborations with numerous UK universities, but no direct involvement in university operations. Strategic research relationships with Bristol, Southampton, Cardiff, Surrey universities.	All EADS Business Units in UK (inc Airbus, Astrium, Defence & Security, MBDA)	None	Member of Council and Management Board of EADS Research Foundation in Wales
Mr Malcolm Roberts Guidance Ltd	Council	KTP awards: Oxford/ Liverpool Universities CASE Award: Cambridge University Research sponsor Oxford University DTC partner Nottingham University	Managing Director, Guidance Ltd, Guidance Navigation Ltd collaborate and consultation with UCL	Guidance Navigation Ltd have RDA award (East Midlands). Guidance Microwave have awards from East of England RDA	Member of Loughborough University Industry Advisory Committee and de Montfort University advisory panel.
Professor Tom Rodden University of Nottingham	Societal Issues Panel	University of Nottingham Imperial College University of Glasgow Cambridge University Reading University	Accelerate Nottingham, Aerial, Alton Towers, BBC, Blast Theory, British Library, Broadway Media Centre Nottingham, BT, Creative Industries KTN, EADS Astrium, Experian, Greater Nottingham Partnership, Infoterra, Inst Practitioners of Advertising, Invensys, Jaguar, Leica, Location & Timing KTN, Logica, Network Rail, OGC, Robocoaster, ScienceScope, SEA, Sharp, Tenet, TRL.	Nottingham City Council, Ordnance Survey, East Midlands Development Agency	None
Mr Martin Sadler HP Labs	User Panel	None	Institute of Information Security Professionals (IISP) HP	None	None

register of interest continued

Name	EPSRC Bodies	University interest	Industry interest	Other Government departments	Other
Professor Roy Sambles University of Exeter	Council Resource Audit Committee	University of Exeter EPSRC KTP with QinetiQ Farnborough EPSRC Program Grant with Oxford, Queen Mary and St Andrews	EPSRC KTP with QinetiQ, Farnborough 2 CASE PhD studentships with Hewlett-Packard 1 ICASE PhD studentship with BAe PhD studentship with BAe I CASE PhD studentship with Sonardyne ICASE PhD studentship with QinetiQ Member of MAST consortium	Member DSAC Member Oversight Board CENTRE Consultant, Dstl, Porton Down, ICASE PhD studentship with Dstl, Porton Down Member of MAST consortium	G C Sambles — SIRCO (Son) Member of Physics subpanel for REF 2013 Member of Sectional II (Physics) committee of the Royal Society Member of Paul Instrument fund panel of the Royal Society
Professor Christopher Snowden University of Surrey	Council	Vice-Chancellor	Filtronic Plc (Corporate Advisor) Board Member of UUK (Non Executive Director) Consultant for Diamond Microwave Devices Ltd	Member of DSAC of MoD (Defence Scientific Advisory Council) Member Technology Strategy Board from July 2009 Expert Panel for Review of BIS March - June 2010	Member of SE Science and Technology Council Vice-President of Royal Academy of Engineering President IET from October 2009 to October 2010
Mrs Alison Starr GE Aviation	Technical Opportunities Panel	Company strategic relationships: Nottingham Oxford, Bristol, Warwick funded by EPSRC Visiting Fellow Bristol University	Employee, GE Aviation Industrial Advisory Board-Diamond Synchrotron Source; WEAF Non exec Director; Chair, Aerospace Training SouthWest Project for SWRDA; Chair National Advisory Committee, Aero & Defence, Human Factors, various minor shareholdings	BERR and EU funded projects Member 'Human science board' Defence Scientific Advisory Committee	CBI ICARG Member
Professor Kathy Sykes University of Bristol	Societal Issues Panel	University of Bristol – Professor of Sciences and Society	Occasional work for the BBC & Channel 4	Advisor for BIS National Coordinating Centre for Public Engagement advisor	Cheltenham Science Festival, co-Director Explore At Bristol, Board of Directors Sciencewise, chair of advisory group RUCK Research with Public Engagement Advisory Panel - Chair
Professor Pierre-Louis Viollet EDF (R&D)	Council	EDF R&D, has several strategic partnership agreements with universities in the UK	Director for Partnership and International relationship for EDF R&D (France) EDF Partnership include the cooperation with UK universities, with the ETI, and with EDF Energy	None	EDF Research in UK

register of interest continued

Name	EPSRC Bodies	University interest	Industry interest	Other Government departments	Other
Professor Sir William Wakeham Independent (Previously Vice-Chancellor Southampton University)	Council, Chair - Resource Audit Committee Chair SSC Project Audit Committee	Visiting Professor: Imperial College London Exeter University Council Member, Universidade Nova da Lisboa Scientific Advisory Committee, Universidade da Lisboa Chairman, South East Physics Network	Non Executive Director, Ilika Technologies plc Chairman, Exeter Science Park Ltd	None	Vice-President and International Secretary Royal Academy of Engineering Chairman, Employers Pensions Forum for HE.
Professor Robin Wallace University of Edinburgh	Technical Opportunities Panel	EPSRC SuperGen PI and grant holder Co-director Energy Technology Partnership	Trustee of Scottish Power Green Energy Trust Technical assessor for NPower Juice Fund	None	Fellow of Royal Society of Edinburgh and IET
Dr David Watson IBM UK Ltd	Council User Panel (Chair) Chair of Programme Advisory Board for the Digital Economy	Member of Industrial Advisory Panel, Computer Science, Oxford University Collaborations with Universities: York, Imperial College, Royal Holloway College, Cranfield, Aberdeen, Cambridge, Southampton	Full time employee of IBM Corporation	Member of RCUK Global Uncertainties Programme, Strategic Advisory Group	None
Professor Ian White University of Cambridge	Technical Opportunities Panel	Pro-VC Institutional Affairs Huazhong University, Guest Professor EPSRC and EU funding	Consultancies & Advisory roles, in particular Avago Technologies & Zinwave Ltd, Boeing funding. Director PervasID	IEEE Photonics Society Board of Governors	Joint Editor-in-Chief, IET Electronics Letters
Dr Tony Wood Pfizer	Council	Industrial Advisory Board, Newcastle University Scientific Advisory Board - Cambridge University	Royal Society of Chemistry - Editor in Chief Medicinal Chemistry Communications	None	None
Professor Mark Welland Ministry of Defence	Council	Professor, Cambridge University	None	Ministry of Defence	None
Professor Rhodri Williams University of Wales, Swansea	Technical Opportunities Panel	Shareholder in Haemometrics Ltd (Swansea University spin out company) EPSRC, NIHR, P&G NESTEC (Nestle)	None	None	None
Mrs Jackie Wilbraham AstraZeneca	User Panel	None	Employee of AstraZeneca	Bio NW Steering committee of North West Development agency Bioscience steering group of SEMTA, sector skills council	BBSRC Bioscience Careers panel ABPI Academic Liaison Advisory Group CBI Inter company academic liaison group Vitae Expert Advisory Group

register of interest continued

Name	EPSRC Bodies	University Interest	Industry Interest	Other Government Departments	Other
Professor Lord Robert Winston Imperial College London	Council Societal Issues Panel (Chair) RCUK Advisory Group	Professor, Science & Society/PI, Reproductive Medicine, Imperial College Chair, Royal College Music Chancellor, Sheffield Hallam University	Director of Atazoa Ltd – company making large transgenic animals	Member, House of Lords Science & Technology Committee	Trustee of Stem Cell Foundation
David York Procter and Gamble Ltd	User Panel	Visiting Professor Leeds University	Procter and Gamble	None	None
Professor Paul Younger Newcastle University	Societal Issues Panel	Newcastle University	NuWater Ltd Project Dewatering Ltd Geothermal Plus Ltd	None	None

Professor David Delpy, Accounting Officer
3 November 2011

REMUNERATION REPORT

Unaudited Information

Remuneration Policy

The remuneration of the Chief Executive of EPSRC is decided by a Remuneration Panel chaired by the Director General of Science and Research and approved by the BIS Permanent Secretary.

EPSRC's Council has established a Remuneration Committee to assess, annually, the individual performance of EPSRC staff on personal contracts, and decide, in the light of these assessments, the remuneration they shall receive. The Committee members are the Chair of EPSRC, Chair of the Resource Audit Committee and EPSRC's Chief Executive.

The remuneration of members of EPSRC's Council is reviewed annually by the Department for Business, Innovation and Skills (BIS).

Details of the service contracts of the Chief Executive and staff on personal contracts are given in the table below.

These individuals do not have any specific contractual rights for compensation on termination of their contract.

Chief Executive and Directors	Contract Start Date	Contract End Date	Notice Period
Professor D Delpy, Chief Executive	1 September 2007	31 March 2014	3 months
Mrs C Coates, Director	Permanent Contract	-	3 months
Mr A Emecz, Director	Permanent Contract	-	3 months
Dr L Thompson, Director	Permanent Contract	-	3 months
Mr S Ward, Director	Permanent Contract	30 September 2010	3 months
Mr A Lewis, Associate Director	Permanent Contract	-	3 months

Audited Information

Salary and Pension Entitlements

The following section provides details of the remuneration and pension interests of the Chief Executive, Directors and EPSRC Council members.

Remuneration

Chief Executive & Senior Staff	2010-11 Salary £k (a)	2010-11 Performance Related Bonus (b)	2009-10 Salary £k (a)	2009-10 Performance Related Bonus (b)
Professor D Delpy (b) Chief Executive	145-150	5-10	140-145	0-5
Mrs C Coates (c) Director	75-80	0-5	75-80	0-5
Mr A Emecz (c) Director	65-70	0-5	65-70	0-5
Dr L Thompson (c) Director	65-70	0-5	65-70	0-5
Mr S Ward (c) Director (until 30.09.2010)	40-45	n/a	80-85	0-5
Mrs V Cassely Assoc Director (until 30.06.2010)	10-15	n/a	60-65	n/a
Dr C Hayter Associate Director	55-60	n/a	55-60	n/a
Mr A Lewis (c) Associate Director	75-80	0-5	25-30	0-5
Mr V Osgood Associate Director	60-65	n/a	60-65	n/a
Dr N Viner Associate Director	60-65	n/a	60-65	n/a
Dr A Wall Associate Director	55-60	n/a	55-60	n/a

a) 'Salary' includes gross salary; overtime; recruitment and retention allowances and any other allowance to the extent that it is subject to UK taxation.

b) The Chief Executive's salary includes a responsibility allowance. The Performance Related bonus and any change in salary are decided by a Remuneration Panel chaired by the Director General of Science and Research and approved by the BIS Permanent Secretary.

c) Performance Related bonuses and any changes in salary for these individuals are determined by the EPSRC Remuneration Committee on an annual basis. The EPSRC Remuneration Committee comprises the Chair of Council, the Chair of the Resource Audit Committee and EPSRC's Chief Executive.

d) The average annual earnings increase (excluding bonuses) for all these members of staff between 2009/10 and 2010/11 was 1.3%

e) There were no benefits in kind paid to any of these members of staff in 2010/11.

Pension Benefits

A Cash Equivalent Transfer Value (CETV) is the actuarially assessed capitalised value of the pension scheme benefits accrued by a member at a particular point in time. The pension figures shown relate to the benefits that the individual has accrued as a consequence of their total membership of the pension scheme, not just their service in a senior capacity. The CETV includes any lump sum payments due on retirement.

The real increase in CETV reflects the increase in CETV effectively funded by the employer. It takes account of the increase in accrued pension due to inflation, contributions paid by the employee (including the value of any benefits transferred from another pension scheme or arrangement) and uses common market valuation factors for the start and end of the period.

Chief Executive, Directors and Associate Directors	Accrued pension at age 60 as at 31/03/11 or at date of leaving £'000	Real increase in pension at age 60 £'000	CETV at 31/03/11 £'000	CETV at 31/03/10 £'000	Real increase in CETV £'000
Professor D Delpy Chief Executive	110-115 with no lump sum	0-2.5 with no lump sum	1,935	1,706	0
Mrs C Coates Director	30-35 plus 90-95 lump sum	0-2.5 plus 0-2.5 lump sum	675	597	2
Mr A Emecz Director	15-20 plus 50-55 lump sum	0-2.5 plus 2.5-5.0 lump sum	255	210	5
Dr L Thompson Director	25-30 with no lump sum	0-2.5 with no lump sum	415	357	6
Mr S Ward Director	40-45 plus125-130 lump sum	0-2.5 plus 0-2.5 lump sum	967	944	-1
Mrs V Cassely Associate Director	10-15 plus 30-35 lump sum	0-2.5 plus 0-2.5 lump sum	144	134	3
Dr C Hayter Associate Director	5-10 plus 25-30 lump sum	0-2.5 plus 0-2.5 lump sum	98	80	6
Mr A Lewis Associate Director	20-25 plus 65-70 lump sum	0-2.5 plus 0-2.5 lump sum	331	285	2
Mr V Osgood Associate Director	30-35 plus 95-100 lump sum	no increase plus no lump sum	759	698	-1
Dr N Viner Associate Director	15-20 plus 55-60 lump sum	0-2.5 plus 0-2.5 lump sum	300	254	8
Dr A Wall Associate Director	15-20 plus 30-35 lump sum	0-2.5 plus 0-2.5 lump sum	279	235	7

Note: The CETV at 31/3/10 figures are different from the closing figure in the prior year's accounts. This is due to the CETV factors being updated to comply with The Occupational Pension Schemes (Transfer Values) (Amendment) Regulations 2008.

Council Members Remuneration

The Chairperson and the Council Members are appointed by the Department for Business, Innovation and Skills (BIS) on behalf of the Secretary of State for Business, Innovation and Skills. The contract terms vary between individual members, but the terms and conditions of appointment are standard. EPSRC provides each member of Council with a Code of Practice which sets out a framework in which they are expected to operate.

Council members receive an honorarium in recognition of their service to EPSRC, together with a refund of their reasonable expenses. Council members are not employees of EPSRC and the appointments are not pensionable. Members of Council who are civil servants are not entitled to receive an honorarium.

Council Members	2010-11 Remuneration £	2009-10 Remuneration £
Mr J Armitt, CBE, FREng (Chairperson)	16,430	16,305
Professor A Anderson, OBE	6,850	6,795
Mr M Carr, FREng	6,850	6,795
Professor L Gladden, CBE, FRS, FREng	6,850	9,040
Dr A Herbert, OBE, FREng	6,850	6,795
Dame S Ion OBE, FREng to 31 March 2010	-	6,795
Professor T Pedley, FRS	6,850	6,233
Dr M Roberts	6,850	6,795
Professor J R Sambles, FRS	6,850	6,795
Professor C M Snowden, FRS, FREng	6,850	7,733
Professor P-L Viollet	6,850	6,233
Dr D Watson	9,110	8,123
Professor W Wakeham, FREng	9,110	9,040
Professor Lord R Winston	9,110	9,040

Professor David Delpy, Accounting Officer
3 November 2011

Statement of the responsibilities of the Engineering and Physical Sciences Research Council

Statement of Responsibilities

Statement of the responsibilities of the Engineering and Physical Sciences Research Council and of its Chief Executive with respect to the financial statements

Under Paragraph 3 of Schedule 1 to the Science and Technology Act 1965, the Secretary of State for Business, Innovation and Skills, with the approval of HM Treasury, has directed EPSRC to prepare for each financial year a Statement of Accounts in the form and on the basis set out in the Accounts Direction. The Accounts are prepared on an accruals basis and must give a true and fair view of the state of affairs of EPSRC and of its income and expenditure, changes in taxpayers' equity and cash flows for the financial year.

In preparing the Accounts the Chief Executive is required to comply with the requirements of the Government Financial Reporting Manual and in particular to:

- observe the Accounts Direction issued by the Secretary of State for Business, Innovation and Skills, including the relevant accounting and disclosure requirements, and apply suitable accounting policies on a consistent basis;
- make judgements and estimates on a reasonable basis;
- state whether applicable accounting standards as set out in the Government Financial Reporting Manual have been followed, and disclose and explain any material departures in the financial statements; and
- prepare the financial statements on a going concern basis.

The Department for Business, Innovation and Skills has appointed the Chief Executive as the Accounting Officer of EPSRC. The responsibilities of an Accounting Officer, including responsibility for the propriety and regularity of the public finances for which the Accounting Officer is answerable, for keeping proper records and for safeguarding EPSRC's assets, are set out in the Accounting Officers' Memorandum, issued by HM Treasury and published in 'Managing Public Money'.

Statement on internal control

Accounting Officer's statement on internal control

1. Scope of responsibility

As Accounting Officer, I have responsibility for maintaining a sound system of internal control that supports the achievement of EPSRC's policies, aims and objectives, whilst safeguarding the public funds and organisational assets for which I am personally responsible, in accordance with the responsibilities assigned to me and described in 'Managing Public Money'.

The powers, roles, responsibilities and membership of Council are defined in its Royal Charter. The nature of its relationship with its sponsor department, the Department for Business, Innovation and Skills (BIS), is defined in the Management Statement and Financial Memorandum agreed with the Department of Trade and Industry (a predecessor department of BIS) in 2005. These documents are available on the EPSRC web site.

The responsibilities of the Chief Executive, who is also the Accounting Officer of the Council, are set out in the Management Statement and Financial Memorandum. I may delegate the administration of these responsibilities to EPSRC's employees but may not assign any of the responsibilities absolutely to any other person. I have established the Executive Leadership Team (ELT) to support me in discharging those duties.

2. The purpose of the system of internal control

The system of internal control is designed to manage risk to a reasonable level rather than to eliminate all risk of failure and to achieve policies, aims and objectives; it can therefore only provide reasonable and not absolute assurance of effectiveness. The system of internal control is based on an ongoing process designed to identify and prioritise the risks to the achievement of organisational policies, aims and objectives, to evaluate the likelihood of those risks being realised and the impact should they be realised, and to manage them efficiently, effectively and economically. The system of internal control has been in place in EPSRC for the year ended 31 March 2011 and up to the date of approval of the Annual Report and Accounts, and it accords with Treasury guidance.

3. Capacity to handle risk

EPSRC Leadership Team

The EPSRC Leadership Team (ELT), comprising the Chief Executive, Directors and Associate Directors is the executive body for EPSRC and provides leadership and guidance on risk management issues. ELT has agreed a Corporate Risk Management Policy, the purpose of which is to set out the roles and responsibilities, along with the framework and underlying principles of the control system, and regularly considers risk matters at its monthly formal meeting. In particular it reviews the Corporate Risk Register which details any risks which are of a corporate nature and are assigned to individual Directors. This register also includes any Directorate and project risks which have been given a red residual risk score. Such risks are escalated to ELT which will then consider the appropriate action to take.

Performance and Risk Management System

EPSRC implemented the Performance and Risk Management (PRM) System in 2006. The Communications, Information and Strategy Directorate maintains the PRM system and provides reports on both Performance and Risk to ELT and Directorate management. These risks have been evaluated, to include consideration of the desired level of risk appetite having regard to EPSRC strategies and priorities; controls have been assessed and responsibilities for management of risks assigned at various levels.

EPSRC's risk register is accessible to all staff through the PRM intranet site. Other documents, such as the EPSRC risk policy, are linked to PRM. General risk awareness is made available to staff through issued guidance and the corporate induction, with more detailed training in risk assessment and management being provided to the Directorate 'risk champions' which has extended the skill base across EPSRC. This group meets regularly to share issues and consider ways of continuously developing and enhancing the risk management framework.

Business Assurance

The Associate Director of Operations is responsible for the Business Assurance function within EPSRC, including the coordination of risk management activities. These activities cover: provision of advice and guidance to Directorates; organising training courses; reviewing quarterly reports from the Directorates and Business Critical Projects; providing commentaries to ELT; representing EPSRC at the meetings of the RCUK Risk Management Network and liaising with Internal Audit on its audit activities. RCUK Risk Management Network Group has been established by RCUK which meets on a six-monthly basis to support sharing of knowledge and approaches to risk management across the Research Councils. This now includes membership of RCUK SSC Ltd.

Fraud Control

EPSRC's fraud policy, response plan and whistle blowing policy are made aware to all new members of staff as part of the induction process. Fraud guidance is available to all staff on the Intranet ensuring that there is an awareness of their responsibilities to report fraud and the process by which to do so. During 2010/11 no instances of fraud were reported.

4. The risk and control framework

The Council of EPSRC

The Council of EPSRC has a responsibility to ensure that high standards of corporate governance are observed at all times. It monitors EPSRC's activities on a continuing basis through an adequate and timely flow of information on performance, budgeting, control and risk management. It also receives a report at each meeting and an annual report from the Resource Audit Committee which includes comment on risk management and Business Critical Projects. The Council has responsibility for decisions on major capital projects after having reviewed the business case and the risks involved in the venture.

Resource Audit Committee

The Resource Audit Committee (RAC) is a committee of the Council tasked with monitoring standards of internal control and propriety, economy, efficiency and effectiveness, and for evaluating the extent to which systems and procedures are appropriate to allow EPSRC's objectives to be met. RAC's responsibilities include: examining the manner in which management ensures and monitors the adequacy of the nature, extent and effectiveness of internal control systems; paying particular attention to risks and contingency plans on all Business Critical Projects; and monitoring the nature and scope of the work of both External and Internal Audit. RAC makes recommendations to ELT and reports to the Council following its meetings.

Directors and Directorates

The Accounting Officer assigns responsibility for each of the Corporate Risks to one or more of the Directors. Each Director bears a responsibility for these and the risks associated with his/her Directorate's activities. A Director may choose to delegate responsibility for the day-to-day administration of risk and associated mitigation or contingency plans to a member of the Directorate staff.

The Directors and their senior managers review the risk register for their own Directorate on a regular basis: to consider new risks or new elements to an existing risk; for changes in status (changes in the likelihood of occurrence or in the impact that would be felt should the risk be realised) as a result of factors internal or external to the Council; for progress in mitigating risks; to determine whether or not the existing controls are adequate; and to determine whether further actions are required.

In addition proposed projects or initiatives are considered at an early stage to assess the potential risks and to determine the balance of benefits and risks. The relevant Director or delegated staff member will then make a decision on whether or not to proceed, or will seek a decision from ELT.

Each Directorate has an individual responsible for coordinating risk management activities.

Research Councils Internal Audit Service

The Research Councils Internal Audit Service (RCIAS) and ELT work together to agree the range of audits to be carried out each year. RAC confirms the annual Audit Plan. The results of these audits are used by ELT in its decision-making on what actions are necessary to maintain high standards in EPSRC's corporate governance and risk management procedures.

The RCIAS carries out audits relevant to EPSRC's risk management activities on a regular basis. We maintain a formal document called the Assurance Framework which lists our formal audits and their frequency and is reported to RAC annually. In 2010/11 audits included: Readiness to Migrate to the Shared Services Centre (Grants) and Business Continuity and Planning.

In addition to the advice resulting from audits, Internal Audit guidance is welcomed as a source of updated best practice.

Controls

EPSRC has in place a system of controls which includes:

- annual Directors' Statements of Internal Control;
- RCUK Assurance reviews the regularity of expenditure on Research Council grants at all eligible research organisations. The programme typically involves around 15-20 visits per annum to the research intensive organisations supplemented by 15 desk based reviews for the less research intensive bodies;
- assurance activities focus on the control environment within Research Organisations and its effectiveness in supporting their ability to comply with the Research Councils terms and conditions which accompany grant funding, ongoing review of risks and the necessary resulting actions;
- responsibility for managing risks delegated to the appropriate level within the organisation;
- regular management review of risks and Business Critical Projects; and
- regular external review of risk management procedures.

Information Risk

EPSRC has in place a system of control for Information Risk that includes:

- a code of practice covering the use of computer facilities and communication systems;
- a document protective marking scheme as required by the government document marking scheme;
- a quarterly return to BIS reporting on major security incidents and significant changes in information risk profile. The EPSRC response was a nil return; and
- an online tutorial provided by the National School of Government has now been adopted by EPSRC and RCUK staff. To date 281 out of 290 members of EPSRC have successfully completed the level 1 training and the average pass mark is 93%. Level 2 training was launched for all Information Asset Owners which has been successfully completed.

5. RCUK Shared Services Centre Project

The RCUK Shared Services Centre (SSC) implementation was a business critical project, ending on 31 March 2011 at a cost of £135.3m, which aimed to deliver a single organisation administrative support service for all UK Research Councils. This includes main administrative activities in Human Resources, Payroll, Finance and Procurement, IT, and Grants processing. Governance and risk management of the implementation project was provided by the RCUK SSC Project Board on behalf of the Research Councils and the project. An RCUK SSC Project Audit Committee, comprising representatives from each of the Research Councils' Audit Committees operated to provide oversight on risk management and control of the project.

The SSC project governance and leadership structures have now been dismantled and the remaining issues fall to the Research Councils and the SSC Ltd to be resolved and managed. A number of developments and enhancements are required and these have been classified as Project Phase II or Business Improvement Requests (BIRs). These need to be carefully managed throughout to ensure that the necessary Value for Money is achieved and that there is not further uncontrolled project scope and cost creep. In the meantime, and in line with government directives, there is a need to develop a wider client base for the SSC Ltd in order to enhance the benefits derived from transactional processing. The concern I have is that the priorities for the SSC Ltd introduced by new clients may divert resources away from deriving further benefits and greater quality for the Research Councils at a critical time. This is an aspect that we will, in conjunction with colleagues from all Research Councils, monitor the impact on existing services as SSC Ltd strategy is implemented.

SSC Human Resources, Payroll, Finance and Procurement and IT services all went live in 2009/10 and Grants in 2010/11. During 2010/11 work was ongoing in further developing the security and controls framework now operating in the relationship between EPSRC and the RCUK SSC Ltd, focused on solving issues as they arise and putting monitoring and reporting mechanisms in place. During the Grants migration process we tested the accuracy of the data transferred from our old system to the new Siebel Grants platform. We received full assurance on the completeness of this process. There have been regular meetings between SSC staff and heads of function within the EPSRC to review service delivery, to address issues and to gain a common understanding of the problems through constructive dialogue. I remain concerned, however, over the apparent inability to be able to extract accurate, reliable, timely management information and this will be pursued over the coming year.

The Research Councils' Internal Audit Service (RCIAS) carried out a number of System Controls Audits of end-to-end financial and HR processes shared by the SSC and the Research Councils. The EPSRC, along with other Research Councils, was involved with seven of these audits, all of which received limited assurance. This audit opinion was based on the situation at a given point in time and much work has now been completed by both the SSC Ltd and the Research Councils to improve the processes and controls since the audits were completed. A comprehensive internal audit strategy relating to the RCUK SSC project and operations for 2011/12 and beyond is being developed.

6. Review of Effectiveness

As Accounting Officer, I have responsibility for reviewing the effectiveness of the system of internal control. My review of the effectiveness of the system of internal control is informed by the work of the internal auditors and the executive managers who have responsibility for the development and maintenance of the internal control framework, and comments made by the external auditors in their management letter and other reports. I have been advised on the implications of the result of my review of the effectiveness of the system of internal control by the Council, the Audit Committee and a plan to address weaknesses and ensure continuous improvement of the system is in place.

In 2010/11 the Research Councils' Internal Audit Service (RCIAS) conducted a number of internal audits at various levels for EPSRC: work specific to EPSRC; combined cross-Council work which involves EPSRC with other Research Councils and the end-to-end processes which involve the SSC and true cross-Council activities. From these audits, in conjunction with the annual report from the Head of RCIAS who can provide positive reasonable assurance to me as the Accounting Officer, I am able to gain the necessary confidence and assurance on the workings of the framework.

In relation to the six internal audits of EPSRC, I was pleased with the substantial assurance provided for four. One audit was an advisory one and another provided limited assurance on some of the processes relating to Disaster Recovery. Part of the Retained Finance Function report gave limited assurance on Management Accounting. This relates to the lack of formal management

information provided by SSC which has been referred to above. The actions have been accepted and I am confident that the issues will be addressed satisfactorily.

I believe that this approach, combined with the breadth and depth of the internal audits, provides me, as the Accounting Officer, with the necessary levels of confidence and assurance that the system of internal control within EPSRC is sound.

In relation, however, to the internal audits conducted for the combined end-to-end processes involving both the Research Councils and the SSC, I am concerned by the number of internal audits that achieved limited assurance (11 from 12). However, given my understanding that both the SSC and Research Councils are progressing jointly and that these audits reflect a moment in time, I am confident that the issues will be addressed satisfactorily. This process is being helped by the development of the protocols at both the strategic and operational level for both the reporting and monitoring of outstanding audit recommendations.

In respect of the RCUK Assurance Programme, for 2010/11, due to unforeseen circumstances, the planned programme of visits could not be undertaken and only 11 visits were made instead of the planned 19. This was due to the diversion of staff to other RCUK priority work and the loss of staff resource without short-term replacement owing to government constraints on recruitment. Despite the shortfall in visits, and taking into account the generally positive nature of the findings from those visits that were made, the programme has nevertheless provided me with a satisfactory level of assurance. Relevant considerations include the good level of inherited assurance available from work in previous years, the fact that the 5 year rolling plan of visits is derived from a risk and assurance map, and that the percentage of coverage for 2010/11 in monetary terms was little short of previous years. A further strand of work scrutinises the costing methodology used in research organisations which, for universities is the Transparent Approach to Costing (TRAC). The programme is an important element of the assurance framework for EPSRC, with an annual report produced for me, as the Accounting Officer, which details activities undertaken in the year as well as proposed activities for the following year. I am therefore confident that the necessary controls are in place to ensure the safeguarding of public money.

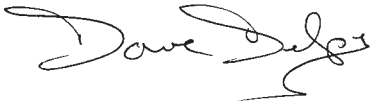
Lastly RCIAS have conducted cross-Council internal audits, mainly on the administrative functions hosted by other Research Councils. These four audits have provided substantial assurance, with one in draft and another with a limited classification and, again, I can take the necessary assurance and confidence, in my role as the Accounting Officer, that the systems for internal control are strong for these areas. I am slightly concerned, however, that the Operational Efficiency Programme gained only limited assurance in this period and will review the final report to ascertain the underlying reasons for this assessment.

The internal audit review programme is developed annually in consultation with the Audit Committee and the internal auditors to audit specific aspects of EPSRC business. The outcomes of these reviews are discussed by ELT and Audit Committee. Updates on corrective action to be taken, if any, are reviewed by Audit Committee. An audit assurance map lists the internal audits previously undertaken, the level of assurance provided for each, and highlights where further reviews are necessary.

statement on internal control continued

The overall coverage of audit work during the year was consistent with that planned and was sufficient to enable me to provide a positive reasonable assurance opinion. I am satisfied that the design and operation of systems of risk management, control and governance are appropriate to the Engineering and Physical Sciences Research Council and its risk profile and my overall opinion is Substantial Assurance.

EPSRC Directors provide an annual statement on internal control which details how the potential issues within each directorate have been identified and managed. These provide assurance on the system of internal control and indicate that there have been no significant internal control issues during 2010/11. I have confidence that the internal control system gives assurance that risk is managed to a reasonable level and that it supports the achievement of the Council's policies, aims and objectives.



Professor David Delpy, Accounting Officer
3 November 2011

The certificate and report of the comptroller and auditor general to the houses of parliament

I certify that I have audited the financial statements of the Engineering and Physical Sciences Research Council for the year ended 31 March 2011 under the Science and Technology Act 1965. These comprise the Statement of Comprehensive Net Expenditure, the Statement of Financial Position, the Statement of Cash Flows, the Statement of Changes in Taxpayers' Equity, and the related notes. These financial statements have been prepared under the accounting policies set out within them. I have also audited the information in the Remuneration Report that is described in that report as having being audited.

Respective responsibilities of the Council, Chief Executive and Auditor

As explained more fully in the Statement of Responsibilities of the Council and the Chief Executive, the Chief Executive is responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view. My responsibility is to audit the financial statements in accordance with applicable law and International Standards on Auditing (UK and Ireland). Those standards require me and my staff to comply with the Auditing Practices Board's Ethical Standards for Auditors.

Scope of the Audit of the Financial Statements

An audit involves obtaining evidence about the amounts and disclosures in the financial statements sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. This includes an assessment of: whether the accounting policies are appropriate to the Engineering and Physical Sciences Research Council's circumstances and have been consistently applied and adequately disclosed; the reasonableness of significant accounting estimates made by the Engineering and Physical Sciences Research Council; and the overall presentation of the financial statements.

In addition, I am required to obtain evidence sufficient to give reasonable assurance that the expenditure and income reported in the financial statements have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them.

Opinion on Regularity

In my opinion, in all material respects the expenditure and income have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them.

Opinion on financial statements

In my opinion:

- the financial statements give a true and fair view of the state of the Engineering and Physical Sciences Research Council's affairs as at 31 March 2011 and of its net expenditure, changes in taxpayers' equity and cash flows for the year then ended; and
- the financial statements have been properly prepared in accordance with the Science and Technology Act 1965 and Secretary of State directions issued thereunder.

Opinion on other matters

In my opinion:

- the part of the Remuneration Report to be audited has been properly prepared in accordance with Secretary of State's directions issued under the Science and Technology Act 1965; and
- the information given in the Management Commentary for the financial year for which the financial statements are prepared is consistent with the financial statements.

the certificate and report of the comptroller and auditor general to the houses of parliament continued

Matters on which I report by exception

I have nothing to report in respect of the following matters which I report to you if, in my opinion:

- adequate accounting records have not been kept; or
- the financial statements are not in agreement with the accounting records or returns; or
- I have not received all of the information and explanations I require for my audit; or
- the Statement on Internal Control does not reflect compliance with HM Treasury's guidance.

Report

I have no observations to make on these financial statements.

Amyas C E Morse
Comptroller and Auditor General
11 November 2011

National Audit Office
157-197 Buckingham Palace Road
Victoria
London SW1W 9SP

STATEMENT OF COMPREHENSIVE NET EXPENDITURE

For the year ended 31 March 2011

	Notes	31 March 2011 £000	31 March 2010 (Restated) £000
EXPENDITURE			
Research	5	549,533	530,040
Energy Technologies Institute LLP	6	6,091	3,703
Public Engagement Programme	7	7,002	9,105
UK Research Facilities	8	12,921	15,749
International Subscriptions	9	787	792
Postgraduate Awards	10	203,828	198,877
Research Fellowships	11	56,672	57,943
Staff Costs	12	13,651	14,593
Other Expenditure	13	15,121	25,008
Share of Losses of Joint Ventures	16	501	154
Total Expenditure		**866,107**	**855,964**
INCOME			
Other Operating Income	3	5,974	2,448
Net Expenditure		**860,133**	**853,516**
Interest due to the Consolidated Fund	4	0	12
Net Expenditure after Interest		**860,133**	**853,504**
Other Comprehensive Expenditure			
Net (Gain)/Loss on Revaluation of Property Plant and Equipment	14	1,154	(2,239)
Net (Gain)/Loss on Revaluation of Intangibles	15	(2)	6
Total Comprehensive Expenditure for the year ended 31 March 2011		**861,285**	**851,271**

The Notes on pages 87 to 104 form part of these Accounts.

STATEMENT OF FINANCIAL POSITION

as at 31 March 2011

	Notes	31 March 2011 £000	31 March 2010 £000
NON-CURRENT ASSETS			
Property, plant and equipment	14	20,551	28,409
Intangible assets	15	28	73
Investment in Joint Venture	16	4,455	497
Total non-current assets		**25,034**	**28,979**
CURRENT ASSETS			
Trade and other receivables	17	66,533	63,855
Cash and cash equivalents	18	4,081	4,242
Total current assets		**70,614**	**68,097**
Total assets		**95,648**	**97,076**
CURRENT LIABILITIES			
Trade and other payables	19	(120,610)	(105,587)
Total current liabilities		**(120,610)**	**(105,587)**
Total assets less net current liabilities		**(24,962)**	**(8,511)**
NON CURRENT LIABILITIES			
Provisions for liabilities and charges	20	-	(234)
Total non-current liabilities		**-**	**(234)**
Assets less liabilities		**(24,962)**	**(8,745)**
TAXPAYER'S EQUITY			
Revaluation reserve		1,570	2,722
General Reserve		(26,532)	(11,467)
		(24,962)	**(8,745)**

The financial statements on pages 83 to 104 were approved by Council on 3 November 2011 and were signed on its behalf by

Professor David Delpy, Accounting Officer
3 November 2011

The Notes on pages 87 to 104 form part of these Accounts.

STATEMENT OF CASH FLOWS

for the year ended 31 March 2011

	Notes	2010/11 £000	2009/10 £000
CASH FLOWS FROM OPERATING ACTIVITIES			
Net Expenditure after interest		(860,133)	(853,504)
Adjustment for Depreciation and loss on disposal of assets	13	6,366	11,806
Adjustment for Share of Losses of Joint Venture	16	501	154
(Decrease) in Provisions	20	(234)	(92)
(Increase) in Receivables	17	(2,678)	(5,158)
Increase in Payables	19	15,023	26,285
Net Cash Outflow from Operating Activities		**(841,155)**	**(820,509)**
CASH FLOWS FROM INVESTING ACTIVITIES			
Purchase of Property, Plant and Equipment	14	(4,074)	(13,785)
Purchase of Investment Asset	16	(4,459)	
Transfer to Shares		4,459	
Net Cash Outflow from Investing Activities		**(4,074)**	**(13,785)**
Net Cash Outflow before Financing		**(845,229)**	**(834,294)**
CASH FLOWS FROM FINANCING ACTIVITIES			
Grant in Aid from BIS		817,000	799,000
Funding from Other Bodies		28,068	34,700
Net Financing		**845,068**	**833,700**
Net Decrease in Cash and Cash Equivalents		**(161)**	**(594)**
Cash and Cash Equivalents at 1 April 2010	18	4,242	4,836
Cash and Cash Equivalents at 31 March 2011	18	4,081	4,242

The Notes on pages 87 to 104 form part of these Accounts.

STATEMENT OF CHANGES IN TAXPAYERS' EQUITY

for the year ended 31 March 2011

	Revaluation Reserve £000	General Reserve £000	Total Reserves £000
Balance at 1 April 2009	489	8,337	8,826
Net Gain on Revaluation of Tangible and Intangible Assets	2,233	-	2,233
Grant-in-Aid from BIS	-	799,000	799,000
Funding from other Research Councils	-	20,833	20,833
Funding from Government Departments, Executive Agencies and the EU	-	4,977	4,977
Funding from other bodies	-	8,890	8,890
Comprehensive Expenditure for the Year	-	(853,504)	(853,504)
Balance at 31 March 2010	**2,722**	**(11,467)**	**(8,745)**
Balance at 1 April 2010	2,722	(11,467)	(8,745)
Net Loss on Revaluation of Tangible and Intangible Assets	(1,152)	-	(1,152)
Grant-in-Aid Financing received in year	-	817,000	817,000
Funding from other Research Councils	-	16,089	16,089
Funding from Government Departments, Executive Agencies and the EU	-	4,015	4,015
Funding from other bodies	-	7,964	7,964
Net Expenditure for the Year	-	(860,133)	(860,133)
Balance at 31 March 2011	**1,570**	**(26,532)**	**(24,962)**

The Notes on pages 87 to 104 form part of these Accounts.

Notes to the EPSRC's Accounts

1. Statement of accounting policies

a) Basis of Accounting

The accounts have been prepared in accordance with a direction given by the Secretary of State with the approval of HM Treasury, in pursuance of Section 2 (2) of the Science and Technology Act 1965. These financial statements have been prepared in accordance with the 2010/11 Government Financial Reporting Manual (FReM). The accounting policies contained in the FReM apply International Financial Reporting Standards (IFRS) as adapted or interpreted for the public sector context. Where the FReM permits a choice in accounting policy, the accounting policy which is judged to be most appropriate to the particular circumstances of EPSRC for the purpose of giving a true and fair view has been selected.

The particular policies adopted by EPSRC are described below. They have been applied consistently in dealing with items that are considered material to the accounts.

The accounts meet the accounting standards issued or adopted by the Accounting Standards Board so far as these requirements are appropriate in accordance with the FReM.

b) (i) Going Concern

These Financial Statements have been prepared on the basis of a Going Concern. Any deficit shown on the Income and Expenditure Reserve will be extinguished over time, having regard to the resource and capital budgets to which EPSRC can be expected to have access.

In the 2009-10 Report and Accounts it was stated that there were uncertainties which could affect funding in the future – additional cuts for the public sector as a whole were signalled by the Chancellor's emergency budget on 22 June 2010 and in the Spending Review on 20 October 2010. On 20 December 2010 David Willetts, Minister for Universities and Science, announced EPSRC's financial allocations for 2011-12 through to 2014-15. EPSRC considers that these allocations, while slightly reduced, will not materially affect the operations of EPSRC and therefore the accounts have been prepared on a going concern basis.

b) (ii) Adoption of New Standards

New standards and interpretations issued by the International Accounting Standards Board (IASB) and the International Financial Reporting Interpretations Committee (IFRIC), becoming effective during the year, have not had a material impact on the EPSRC's financial statements. A change in accounting policy has occurred regarding the cost of capital. This is explained in note 1(n).

Adoption of new or revised standards effective and major FReM changes for 2010-11

All International Financial Reporting Standards, Interpretations and Amendments to published standards, effective at 31 March 2011, have been adopted in these financial statements, taking account of the specific interpretations and adaptations included in the FReM.

IAS 7 Statement of Cash Flows (effective for periods beginning on or after 1 January 2010) – this requires that only expenditure which results in a recognised asset in the Statement of Financial Position can be classified within investing activities. EPSRC is compliant with IAS 7 in that the only recognised investing activities are the purchase and sale of property, plant and equipment, investments and intangible assets within the Statement of Financial position.

An additional amendment to the FReM, effective from 1 April 2010, has been made in respect of IAS 36 Impairment of Assets. This requires impairments of property, plant and equipment that arise from a clear consumption of economic benefits to be taken direct to the Statement of comprehensive Net Expenditure.

c) Property, Plant and Equipment and Depreciation/Amortisation

Capital expenditure includes the purchase of land, buildings, construction and services projects, equipment and intangible assets valued at £3,000 or more.

Property, plant and equipment are included at cost or at valuation. The basis of valuation is Open Market Value for existing use where this can be established, otherwise Current Depreciated Replacement Cost.

Land and Buildings and major items of equipment are professionally valued at least every five years, at which time the remaining useful life of each revalued asset is also reassessed. The last valuation was in March 2010, conducted by Powis Hughes and Associates, Chartered Surveyors. The basis of the valuation was Open Market Value. Appropriate indices are used in between formal professional valuations.

Surpluses or deficits on revaluation are taken to the Revaluation Reserve, except that any permanent diminution in value is charged to the Statement of Comprehensive Net Expenditure in the year in which it arises. Increased depreciation charges arising from the revaluation are matched by annual transfers from the Revaluation Reserve to the Income and Expenditure Reserve. On the disposal of a fixed asset, that element of the Revaluation Reserve which thereby becomes realised is transferred directly to the Income and Expenditure Reserve.

Property, plant and equipment are depreciated at rates calculated to write off the costs or the valuation of each asset evenly over its expected useful life, as follows:

Freehold land	not depreciated
Freehold buildings	62 years
Specialist scientific equipment	3 – 15 years
IT equipment	3 years
Fixtures and fittings	5 years
General office equipment	5 years
Vehicles	4 years

Assets in the course of construction are not depreciated until the asset is available for use.

d) Operating Segments

The primary format used for segmental reporting is by programme expenditure as this reflects EPSRC's internal management structure and reporting. EPSRC's assets and liabilities are shared across the operating segments, and as segmental information on assets and liabilities is not used internally, disclosure is not needed.

e) Ownership of Equipment Purchased with EPSRC Research Grants

Equipment purchased by an organisation with research grant funds supplied by the EPSRC belongs to the organisation and is not included in the EPSRC's property, plant and equipment. Through the Conditions of Grant applied to funded organisations, the EPSRC must be informed if, during the life of the research grant, the need for the equipment diminishes substantially or it is not used for the purpose for which it was funded. The EPSRC reserves the right to determine the disposal of such equipment and to claim the proceeds of any sale.

f) Equipment Located Elsewhere

EPSRC owns assets with a combined net book value of £15m which are located elsewhere but are included in the Statement of Financial Position.

This figure includes the HECToR supercomputing facility, which came into operation in October 2007. At the Statement of Financial Position date the combined net book value of assets held at the facility in Edinburgh was £11.8m (2009/10 £12.2m). Of these assets, £9.1m is currently under construction, and the remaining £2.7m is shown under IT equipment.

A pool of scientific equipment is provided and updated by the Science and Technology Facilities Council (STFC) on behalf of the EPSRC, specifically for loan to research organisations. Wherever located, this equipment remains the property of the EPSRC and is therefore included in the Statement of Financial Position.

g) Grant-in-Aid

Grant-in-Aid received for revenue purposes has been regarded as a contribution from a controlling party giving rise to a financial interest in the organisation. Hence, Grant-in-Aid has been accounted for as financing, not income and is credited to the General Reserve. The same treatment has been adopted for other sources of financing. Grant-in-Aid for the purchase of a specific asset is credited to the General Reserve and released to the Statement of Comprehensive Net Expenditure over the useful life of the asset in amounts equal to the annual depreciation charge.

h) Research and Development

As a research organisation, all EPSRC's research and development expenditure is charged to the Statement of Comprehensive Net Expenditure when it is incurred. Intellectual property rights arising from research and development funded by EPSRC are passed to the organisations performing the research.

i) Operating Leases

EPSRC currently hold no finance leases. Operating lease rentals are charged to the Statement of Comprehensive Net Expenditure on a straight line basis over the period of the lease.

j) Foreign Exchange

Transactions denominated in foreign currencies are translated into sterling at the rate of exchange ruling at the date of transactions. Any exchange differences arising in the ordinary course of business are taken to the Statement of Comprehensive Net Expenditure. Assets and liabilities in foreign currencies in existence at the Statement of Financial Position date are translated at the rates ruling at that date.

k) Research Grants

Subject to the terms and conditions under which research grants are awarded, EPSRC makes payments for grants on the basis of pre-determined quarterly profiles. Profiles are arranged, in overall terms, to reflect the rate and incidence of expenditure at the grant holding organisation. Payments are normally made in the period to which they relate, although EPSRC retains some latitude in timing. Grant expenditure is accounted for on an accruals basis to reflect the usage of grant funds on work carried out. Future commitments at the Statement of Financial Position date are disclosed in note 24.

l) Value Added Tax

As EPSRC is partially exempt for VAT purposes, all items of expenditure and fixed asset purchases are shown inclusive of VAT where applicable. Residual input tax reclaimed under the partial exemption scheme is taken to the Statement of Comprehensive Net Expenditure as other income.

m) Pension Scheme

The employees of the Council are members of the Research Councils' Pension Scheme (RCPS) which is a defined benefit scheme funded from annual grant-in-aid on a pay as you go basis. The benefits are by analogy to the Principal Civil Service Pension Scheme, except that while the schemes provide retirement and related benefits based on final or average emoluments, redundancy and injury benefits are administered and funded by the Council. As permitted by paragraph 31 of IAS 19, the Company has recorded the pension contributions payable for the period as its charge to the Statement of Comprehensive Net Expenditure.

n) Notional Cost of Capital change in Policy

As part of the HM Treasury's Clear Line of Sight project the cost of capital charge will no longer need to be reported in an entity's annual report and accounts. In response to this EPSRC will no longer be showing a notional costs note. It will also no longer be showing these costs on the face of the Statement of Comprehensive Net Expenditure. This is to make reporting simpler and easier to understand. For the financial years 2009/10 and 2010/11 this adjustment has no effect on the statement of Comprehensive Net Expenditure as it was charged and reversed, and therefore the net expenditure for the year transferred to the Income and Expenditure Reserve is unaffected.

o) Employee Benefits

Under IAS 9 'Employee Benefits' an entity is required to recognise short-term employee benefits when an employee has rendered a service in exchange for those benefits. No material benefits have been recognised by EPSRC for the year ended 31 March 2011.

p) Derivatives and other Financial Instruments

Due to the non-trading nature of its activities and the way in which EPSRC is financed, EPSRC is not exposed to the degree of financial risk faced by non-public sector entities. Moreover, financial instruments play a much more limited role in creating or changing risk that would be typical of the listed companies to which IAS 32, 39 and IFRS 7, mainly apply. EPSRC has very limited powers to borrow or invest surplus funds and financial assets and liabilities are generated by day-to-day operational activities and are not held to change the risks facing EPSRC in undertaking its activities.

Trade receivables are not interest bearing and are carried at original invoice amount less allowance for non-collectable amounts. Provision for impairment is established when there is objective evidence that the Council will not be able to collect all amounts due according to the original terms of the receivable. The amount of provision is the difference between the carrying amount and recoverable amount and is recognised in the Statement of Comprehensive Net Expenditure.

Trade and other payables are recognised in the period in which related money, goods or services are received or when a legally enforceable claim against EPSRC is established or when the corresponding assets or expenses are recognised.

Receivables and payables which mature or become payable within 12 months from the Statement of Financial Position date have been omitted from the currency profile.

q) Cash and Cash Equivalents

Cash and cash equivalents comprise cash balances and call deposits.

r) Other Operating Income

Other operating income is recognised on a receivable basis and mainly represents income from other Research Councils for services provided.

s) Accounting Estimates

The Council makes estimates and assumptions that affect the reported amounts of assets and liabilities in the next financial year. Estimates and judgements are continually evaluated and based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances at the reporting date. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amount of assets and liabilities within the next financial year are discussed below.

The estimated economic useful lives of property, plant and equipment and intangibles are estimated based on the period over which the asset is expected to be available for use. Such estimation is based on experiences with similar assets and practices of similar businesses. The estimated useful life of each asset is reviewed periodically and updated if expectations differ from previous estimates due to physical wear and tear, technical or commercial obsolescence or legal or other limits on the use of an asset. An increase in the estimated useful life of any item of property, plant and equipment and intangibles would decrease the recorded operating expenses and increase non current assets values.

t) Key Accounting Judgements

EPSRC's significant accounting policies are stated above. Not all of these policies require management to make difficult subjective or complex judgements. Those that follow are intended to provide an understanding of the policies that management consider critical because of the level of complexity and judgement involved in their application and their impact on the financial statements.

- **Provisions for Liabilities**
  Estimates are subject to uncertainty regarding timing or amounts of obligations (legal or constructive) due by the EPSRC. Significant judgements are made regarding probability and measurement of obligations. Specifically EPSRC provides for the liability arising from Research and Training Grants by accruing expenditure that is due and also recording prepayments where the timing of payments are ahead of expenditure being incurred by grantholders.
- **Impairment of Assets**
  Property, Plant and Equipment are included at recoverable amounts. Management assess whether assets retain their recoverable amount or whether the asset is impaired, suffering a permanent diminution in value. Judgements are made on obsolescence, damage and loss resulting from normal business operations, and changes in value as part of the annual review of Property Plant and Equipment.

2. Analysis of net expenditure by segment

The primary format used for segmental reporting is by category of expenditure, as this reflects the internal management reporting of EPSRC.

EPSRC's staff costs, other operating expenditure, depreciation, assets and liabilities are shared across all operating segments and consequently it is not necessary to accurately analyse them by segment for inclusion in this note.

	Research £000	Postgraduate training £000	Other Programme £000	Total 2011 £000	Total 2010 £000
Research	549,533	-	-	**549,533**	530,040
Energy Technologies Institute LLP	6,091	-	-	**6,091**	3,703
Public Engagement Programme	-	-	7,002	**7,002**	9,105
UK Research Facilities	12,921	-	-	**12,921**	15,749
International Subscriptions	-	-	787	**787**	792
Postgraduate Awards	-	203,828	-	**203,828**	198,877
Research Fellowships	-	56,672	-	**56,672**	57,943
Staff Costs	-	-	-	**13,651**	14,593
Other Operating Expenditure	-	-	-	**8,755**	13,202
Depreciation	-	-	-	**6,366**	11,806
Total Operating Expenditure by Segment	**568,545**	**260,500**	**7,789**	**865,606**	855,810

The attribution of the comparative 2011 figures is the same as for 2010.

3. Income

	2011 £000	2010 £000
RCUK income	**3,720**	270
Income for Services Provided	**2,254**	2,178
Total	**5,974**	2,448

4. Non operating income

	2011 £000	2010 £000
Interest due to the Consolidated Fund	-	12
Total payable to Consolidated Fund Extra Receipts (CFER)	-	12

5. Research

Total gross expenditure on research grants shown by programme:

	2011 £000	2010 £000
Nanoscience	**10,541**	8,463
Next Generation Healthcare	**7,162**	4,536
Digital Economy	**16,783**	7,817
Energy Multidisciplinary Applications	**21,785**	7,302
Energy Research Capacity	**61,453**	57,220
Knowledge Transfer	**65,622**	33,744
Infrastructure and International	**18,394**	51,422
Mathematical Sciences & Public Engagement	**15,563**	27,347
Cross Disciplinary Research	**37,631**	39,411
Materials Mechanical & Medical Engineering	**90,569**	70,740
Information & Communication Technology	**74,685**	83,165
Physical Sciences	**77,457**	94,667
Process Environment & Sustainability	**26,032**	27,157
User Led Knowledge and Skills	**25,856**	17,049
Total Expenditure on Research	**549,533**	530,040

6. Energy Technologies Institute LLP

Energy Technologies Institute LLP (ETI LLP) was established in 2008 as a joint initiative between the public and private sectors to encourage research and investment in new and emerging energy technologies.

ETI LLP has been established with the aim to accelerate the development, demonstration and eventual commercial deployment of a focused portfolio of energy technologies which will increase energy efficiency, reduce greenhouse gas emissions and help achieve energy and climate change goals.

EPSRC and the Technology Strategy Board (TSB) represent the public sector's 50% interest in the partnership. The Secretary of State for Business, Innovation and Skills is a designated member of ETI LLP but EPSRC and TSB are responsible for providing the member's contributions on behalf of BIS.

EPSRC has made payments of £6,091k (2009/10 £3,703k) to ETI LLP which have been expensed as EPSRC itself does not have an investment in ETI LLP.

7. Public Engagement Programme

	2011 £000	2010 £000
PEP Awards	**2,023**	1,532
PEP Fellowships	**387**	427
PEP Additional Programme Expenditure	**4,592**	7,146
Total Expenditure on PEP	**7,002**	9,105

EPSRC has a Public Engagement Programme (PEP) for its research grant holders and Fellows. PEP Additional Programme Expenditure in 2010/11 includes payments totalling £2.1m (2009/10 £5.3m) made on behalf of Research Councils UK.

8. UK Research Facilities

	2011 £000	2010 £000
High Performance Computing:		
University of Edinburgh (HPCx)	**-**	2,181
University of Edinburgh (HECToR)	**7,798**	8,261
Total High Performance Computing	**7,798**	10,442
Science and Technology Facilities Council facilities	**3,473**	3,730
Other Expenditure on Research Facilities	**1,650**	1,577
Total Expenditure on UK Research Facilities	**12,921**	15,749

EPSRC provides facilities to enable world class research. HECToR, a high-end computing facility, was introduced in October 2007. At the Statement of Financial Position date, EPSRC held assets with a combined net book value of £11.8m at the HECToR facility.

9. International subscriptions

Total amounts paid in the year for current operations:

	2011 £000	2010 £000
European Science Foundation (ESF)	**344**	632
International Fusion Research (ITER)	**243**	-
Institute des Hautes Etudes Scientifiques (IHES)	**200**	160
Total Expenditure on International Subscriptions	**787**	792

10. Postgraduate Awards

	2011 £000	2010 £000
Collaborative Training Accounts	**42,755**	57,820
Doctoral Training Grants	**82,664**	81,078
Dorothy Hodgkin Postgraduate Awards	**4,549**	6,060
International Doctoral Scholarships	**542**	969
Centres for Doctoral Training	**57,136**	37,373
Roberts Skills Training	**13,777**	13,643
Other Awards	**2,405**	1,934
Total Expenditure on Postgraduate Awards	**203,828**	198,877

EPSRC acts as a manager for the Dorothy Hodgkin Awards on behalf of Research Councils UK (RCUK). Funding toward Dorothy Hodgkin Awards is provided by the Research Councils and by industrial collaborators.

Roberts Skills Training is not an EPSRC Postgraduate Award; rather it is expenditure to deliver enhanced training for postgraduate and postdoctoral award holders. Roberts Skills Training expenditure has been separated out to reflect the significant level of expenditure.

11. Research Fellowships

	2011 £000	2010 £000
Academic	**13,419**	18,544
Advanced	**11,246**	14,332
European Young Investigator (EURYI)	**418**	641
Post-Doctoral	**7,853**	7,882
Senior	**2,326**	2,665
Other Fellowships	**21,410**	13,879
Total Expenditure on Research Fellowships	**56,672**	57,943

12. Staff Numbers and Related Costs

(a) Staff Costs

	2011 £000	2010 £000
Salaries and Wages		
Permanent Staff	**8,994**	9,998
Agency Staff & Contract Personnel	**1,336**	1,571
Social Security Costs	**634**	715
Other Pension Costs	**2,143**	1,881
Council and Panel Members' Fees and Honoraria	**484**	533
Current Staff Costs	**13,591**	14,698
Net Early Retirement Costs	**60**	(105)
Total Expenditure on Staff Costs	**13,651**	14,593

(b) Staff Numbers

Average numbers of full-time equivalent employees during the year

	2011	2010
Senior Management	**43**	43
Managerial and Supervisory	**175**	187
Administrative Support	**56**	81
Average Number of Staff Employed	**274**	311
Contract Staff	**1**	15
Agency Staff	**14**	2
Total Average Number of Staff	**289**	328

(c) Remuneration of Council and Panel Members

The total emoluments of the Chairperson, Mr John Armitt, were £16,430 including taxable benefits (2009/10 £16,305).

The standard honorarium paid to Council members was £6,850 (2009/10 £6,740).

The standard daily attendance allowance paid to Panel members was £160 (2009/10 £160).

	No	2011 £000	No	2010 £000
Council Members' Annual Honoraria:	**14**	**89**	14	88
Daily Attendance Fees paid to Panel Members		**135**		190
Social Security Costs		**9**		9
		233		287
Chairman's Emoluments		**16**		16
Total Expenditure on Council and Panel Members		**249**		303

(d) Superannuation

The employees of the Council are members of the Research Councils' Pension Schemes (RCPS) which are defined benefit schemes funded from annual grant-in-aid on a pay as you go basis. The benefits are by analogy to the Principal Civil Service Pension Scheme, except that while the schemes provide retirement and related benefits based on final or average emoluments any redundancy and injury benefits are administered and funded directly by EPSRC.

The scheme is administered by the Research Councils' Joint Superannuation Services with the associated grant-in-aid managed by the Biotechnology and Biological Sciences Research Council (BBSRC). The schemes' accounts are prepared by BBSRC, on behalf of the BBSRC Chief Executive as the Accounting Officer for the RCPS. Separate accounts are published for the Pension Schemes. Employees' contributions vary between 1.5% and 3.5%. The employer's contribution is agreed by the RCPS Board of Management on the recommendation of the Government Actuary's Department and is set at 25.6% of pensionable pay (2009-10 21.3%).

The RCPS is an unfunded multi-employer defined benefit State scheme which is funded on a pay-as-you-go basis: contributions are set at a level that is expected to be sufficient to pay the required benefits falling due in the same period; future benefits earned during the current period will be paid out of future contributions. In RCPS, the entity has no legal or constructive obligation to pay those

future benefits: its only obligation is to pay the contributions as they fall due and if the entity ceases to employ members of RCPS, it will have no obligation to pay the benefits earned by its own employees in previous years. For this reason, RCPS is treated as a defined contribution plan as stated in IAS 19.

The actuarial valuation was carried out as at 31 March 2010 by a qualified independent actuary but the final results of this are currently unknown. The draft report is available and the employer's contribution rate has increased from 21.3% to 25.6%, effective from 1 April 2010. The employers' contribution rate of 25.6% therefore applies to these accounts. Details are available in the accounts of the RCPS, which can be found at www.bbsrc.ac.uk.

For 2010/11, employer's contributions of £2,142,586 were payable to the RCPS (2009/10 £1,808,653) at 25.6% of pensionable pay, based on the salary bands. Employer contributions are to be reviewed every three years following a full scheme valuation by the Government Actuary. The contribution rates reflect benefits as they are accrued, not when the costs are actually incurred, and reflect past experience of the scheme.

(e) Compensation schemes and exit packages

During 2010/11 there have been no compulsory redundancies or exit packages agreed.

13. Other expenditure

	2011 £000	2010 £000
Office Costs, Utilities and Services	**6,137**	7,714
Travel and Subsistence	**1,045**	1,989
Rent, Rates and Maintenance	**897**	1,251
Consultancies	**648**	998
Write-offs and Recoveries	**(571)**	379
Equipment and Supplies	**348**	655
Administration, subscriptions and bank charges	**131**	105
External Auditors' Remuneration	**120**	111
Non-Cash Items		
Depreciation	**6,366**	11,806
Total Other Expenditure	**15,121**	**25,008**

External Auditors' Remuneration is comprised of £80k relating to the audit of the year-end accounts and £40k in respect of additional audit fees for 2009/10 which was not invoiced until after the 2009/10 accounts were laid. There has been no remuneration for non-audit services.

14. Property, plant and equipment

	Land £000	Buildings £000	IT £000	Plant & Machinery £000	Furniture & Fittings £000	Payments on Account & Assets under Construction £000	Total £000
Net Book Value at 1 April 2009	**697**	**3,044**	**15,188**	**2,072**	**63**	**3,097**	**24,161**
Cost or Valuation at 1 April 2009	**697**	**5,486**	**28,578**	**5,212**	**444**	**3,097**	**43,514**
Additions	-	-	2,352	924	845	9,664	13,785
Disposals	-	-	-	-	-	-	0
Revaluations	1,652	(1,986)	25	3	16	-	(290)
At 31 March 2010	**2,349**	**3,500**	**30,955**	**6,139**	**1,305**	**12,761**	**57,009**
Depreciation							
At 1 April 2009	**-**	**2,442**	**13,390**	**3,140**	**381**	**-**	**19,353**
Charged in year	-	123	11,073	505	64	-	11,765
Disposals	-	-	-	-	-	-	0
Revaluations	-	(2,557)	25	1	13	-	(2,518)
At 31 March 2010	**-**	**8**	**24,488**	**3,646**	**458**	**-**	**28,600**
Net book value at 31 March 2010	**2,349**	**3,492**	**6,467**	**2,493**	**847**	**12,761**	**28,409**
Cost or Valuation at 1 April 2010	**2,349**	**3,500**	**30,955**	**6,139**	**1,305**	**12,761**	**57,009**
Reclassification	-	1	(71)	92	10	-	32
Additions	-	-	3,293	-	-	781	4,074
Disposals	-	-	-	(81)	(9)	-	(90)
Transfer to shares	-	-	-	-	-	(4,459)	(4,459)
Revaluations	(724)	(226)	(2,694)	(170)	123	-	(3,691)
At 31 March 2011	**1,625**	**3,275**	**31,483**	**5,980**	**1,429**	**9,083**	**52,875**
Depreciation							
At 1 April 2010	**-**	**8**	**24,488**	**3,646**	**458**	**-**	**28,600**
Reclassification	-	1	1,208	(1,177)	-		32
Charged in year	-	113	6,408	305	224	-	7,050
Disposals	-	-	-	(81)	(9)	-	(90)
Revaluations	-	(108)	(3,330)	141	29	-	(3,268)
At 31 March 2011	**-**	**14**	**28,774**	**2,834**	**702**	**-**	**32,324**
Net book value at 31 March 2011	**1,625**	**3,261**	**2,709**	**3,146**	**727**	**9,083**	**20,551**
Asset financing							
Owned	1,625	3,261	2,709	3,146	727	9,083	20,551
Leased	-	-	-	-	-	-	-
Net book value at 31 March 2011	**1,625**	**3,261**	**2,709**	**3,146**	**727**	**9,083**	**20,551**

These assets are funded solely from Grant-in-Aid.

Following a review of the accounting treatment, EPSRC reclassified the costs of the HECToR Supercomputing Facility from Plant and Machinery to IT.

EPSRC currently has one asset in the course of construction which is the HECToR Supercomputing Facility. The asset under construction element of HECToR is £9.1m. The prior SSC asset under construction is now complete.

EPSRC's share of the capital costs to date of the Research Councils on the Shared Services Centre is 8.24%. On 29th March 2011, each of the seven Councils, who were joint investors in the RCUK Shared Services Centre, sold their individual assets in the course of construction, which totalled £54 million, to the RCUK Shared Services Centre Ltd (RCUK SSC Ltd), in exchange for 'B' shares to the same value in RCUK SSC Ltd. EPSRC's agreed share, 8.24%, of the capital costs of the project to the date of sale was £5.1 million.

The last professional valuation of land and buildings was in March 2011, conducted by Powis Hughes and Associates, Chartered Surveyors. The basis of the valuation was Open Market Value for existing use. The valuation was made in accordance with RICS Appraisal and Valuation Manual or a named alternative. Between formal professional valuations appropriate indices are used.

15. Intangible assets

	Software £000	Licences £000	Total £000
Net Book Value at 1 April 2009	**108**	**-**	**108**
Cost or valuation			
At 1 April 2009	249	17	266
Revaluation	10	1	11
At 31 March 2010	**259**	**18**	**277**
Amortisation			
At 1 April 2009	141	17	158
Charged in year	41	-	41
Revaluation	4	1	5
At 31 March 2010	**186**	**18**	**204**
Net book value at 31 March 2010	**73**	**0**	**73**
Cost or valuation			
At 1 April 2010	259	18	277
Reclassification	(61)	31	(30)
Additions	-	-	-
Revaluation	(19)	-	(19)
At 31 March 2011	**179**	**49**	**228**
Amortisation			
At 1 April 2010	186	18	204
Reclassification	(61)	31	(30)
Charged in year	5	-	5
Revaluation	21	-	21
At 31 March 2011	**151**	**49**	**200**
Net book value at 31 March 2011	**28**	**0**	**28**

16. Investment Assets

	SSC "A" Shares £	SSC "B" Shares £	Total £
At 1 April 2009	1	650,960	**650,961**
Share in losses of joint ventures	-	(153,807)	**(153,807)**
Net book value at 31 March 2010	**1**	**497,153**	**497,154**
At 1 April 2010	1	497,153	**497,154**
Additions in year	-	4,459,188	**4,459,188**
Share in losses of joint ventures	-	(501,000)	**(501,000)**
Net book value at 31 March 2011	**1**	**4,455,341**	**4,455,342**

The EPSRC's share ownership in RCUK Shared Services Centre Limited (SSC Ltd) is one (2010:one, 2009: one) "A" ordinary share of £1 and 5,110,148 (2010: 650,960) "B" shares of £1 each. The "A" shares carry a voting right per share. Each of the seven Research Councils is a joint investor in the project and each Council's individual share is 14.29%. The "B" shares convey ownership rights to the holder, including any distributions or proceeds from sale of the SSC Ltd. The "B" shares are apportioned in accordance with the agreed share of the implementation costs – EPSRC's share ownership is therefore 8.24% (2010: 8.24%).

The operating results, assets and liabilities of SSC Ltd are reflected in the Group's Financial Statements in accordance with IAS 31. SSC Ltd has posted a loss for the year of £5.7m (2009-10 loss of £0.4m).

The Research Councils entered into a supplementary shareholders' agreement with the Secretary of State for Business, Innovation and Skills on 4th October 2011 to allot the Secretary of State for Business, Innovation and Skills one 'A' ordinary share in the capital of RCUK SSC Ltd. This supplementary agreement confirmed the covenants of the original shareholders' agreement, signed 8th August 2007, remain extant. On that basis, the Councils retain the same level of investment in RCUK SSC Limited (for EPSRC, 8.24% of the Company's B shares).

RCUK Shared Services Centre Limited (SSC) (registered in England, registration number 6330639). Place of business – North Star House, North Star Avenue, Swindon, SN2 1FF.

17. Trade receivables and other current assets

	31st March 2011 £000	31st March 2010 £000
Amounts falling due within 1 year:		
Trade receivables - Central Government Bodies	**41,549**	43,150
Trade receivables - Public corporations	**1,650**	164
Other Trade Receivables	**3,859**	1,568
Other Receivables	**-**	-
Prepayments and accrued revenue - Central Government Bodies	**4,230**	3,546
Prepayments and accrued revenue - Public corporations	**503**	575
Other Prepayments and accrued revenue	**14,742**	14,852
	66,533	**63,855**

18. Cash and cash equivalents

	2010/11 £000	2009/10 £000
Balance at 1 April	4,242	4,836
Net change in cash and cash equivalent balances	(161)	(594)
Balance at 31 March	**4,081**	**4,242**
The following balances at 31 March 2011 were held at:		
Office of HM Paymaster General	2,458	1,262
Commercial banks and cash in hand	1,623	2,980
Balance at 31 March	**4,081**	**4,242**

19. Trade payables and other current liabilities

	31st March 2011 £000	31st March 2010 £000
Amounts falling due within 1 year:		
VAT	(2)	266
Trade Payables - Central Government Bodies	1,399	3,149
Other Trade Payables	6,954	8,307
Accruals and deferred revenue - Central Government Bodies	709	823
Other Accruals and deferred revenue	111,550	93,042
	120,610	**105,587**

20. Provisions for liabilities and charges

	Severance Costs £000	System Termination £000	Total £000
Balance at 1 April 2010	**197**	**37**	**234**
Increase in Provision	-	-	**-**
Payment/utilisation of provision	-	-	**-**
Decrease in Provision	(197)	(37)	**(234)**
Reduction in Provision	-	-	**-**
Net Movement in Provision	(197)	(37)	**(234)**
Balance at 31 March 2011	**-**	**-**	**-**

The Research Councils and the RCUK Shared Services Centre Ltd have developed a Shared Services Centre to carry out the central functions of HR, Finance, Grants processing, Procurement and IT across the Councils. As a result some research councils incurred redundancy costs, particularly where existing staff live a distance away from Swindon where the Centre is situated.

The Research Councils collectively agreed that they would be jointly liable for all necessary redundancies. The Councils calculated their likely redundancy liabilities in order to make a 2008-09 provision and updated this as at 31 March 2010. A funding allocation model was developed and agreed

by all the Research Councils and this identified the proportion of SSC project spend and liability that each individual Council would incur.

During 2010-11 these provisions were fully utilised as the transfer of services to SCC Ltd has now been completed.

21. Capital commitments

	2010/11 £000	2009/10 £000
Contracted capital commitments at 31 March for which no provision has been made		
Property, plant and equipment - Shared Services Centre	-	682
HECToR (Cray Inc/University of Edinburgh HPCX Ltd/National Algorithms Group)	24,731	3,500
Total	**24,731**	**4,182**

Contractual commitments of £24.73m existed at 31 March 2011 with regard to the upgrade and service provision of the supercomputer HECToR, the first phase of which was delivered in September 2007. The value of the HECToR contractual commitments are for the whole of the remaining project and include service charges and computational engineering support. Not all of these costs are capitalised and held as fixed assets as they are written off in the year they are incurred.

22. Commitments under leases

Operating leases

The total future minimum lease payments under operating leases are given in the table below for each of the following periods:

	2010/11 £000	2009/10 £000
Obligations under operating leases comprise:		
Buildings:		
Not later than one year	2	2
Later than one year and not later than five years	-	-
Later than five years	-	-
	2	**2**
Other:		
Not later than one year	8	16
Later than one year and not later than five years	15	2
Later than five years	-	-
	23	**18**

Finance leases

EPSRC has no obligations under finance leases

23. Other financial commitments

EPSRC estimates that the future costs to completion of research and training grants at 31 March 2011 are £1.98million. The payments to which EPSRC is committed during 2010/11, analysed by the period during which the commitment expires are as follows:

	2010/11 £000	2009/10 £000
Not later than one year	703,481	729,938
Later than one year and not later than five years	1,225,235	1,169,442
Later than five years	49,260	58,386
Total financial commitments	**1,977,976**	**1,957,766**

24. Contingent liabilities

EPSRC had no contingent liabilities as at 31 March 2011.

25. Related-party transactions

EPSRC is a Non Departmental Public Body sponsored by the Department for Business, Innovation and Skills (BIS). It complies with the International Accounting Standard on Related Party Transactions (IAS 24) as amended for Central Government use by HM Treasury.

For the purpose of IAS 24, BIS is regarded as a related party. During the year, EPSRC had various material transactions with BIS and other bodies for which BIS is regarded as the parent department; namely the Biotechnology and Biological Sciences Research Council, the Economic and Social Research Council, Natural Environment Research Council; Medical Research Council; Science and Technology Facilities Council; Arts & Humanities Research Council; Technology Strategy Board and the RCUK Shared Services Centre Ltd.

In addition, EPSRC had material transactions with other Government Departments and with other Central Government Bodies (viz. the Ministry of Defence, HM Treasury and the Department for Environment, Food and Rural Affairs).

During the year EPSRC announced the following grants to organisations in respect of proposals from members of EPSRC Council:

Organisation	Proposer	Grant Reference	Value £000
University of Cambridge	Professor L Gladden	EP/I500294/1	268
		EP/I50057X/1	538

The relevant Council members were not involved in the approval of these grants.

During the year EPSRC announced the following numbers and cumulative values of grants and postgraduate and fellowship awards to organisations where Council members occupied senior positions in the organisation:

Organisation	Research Grants No.	Research Grants £000	Postgraduate Awards No.	Postgraduate Awards £000	Research Fellowships No.	Research Fellowships £000
University of Cambridge	56	33,202	3	7,881	9	5,609
Cranfield University	14	18,225	2	1,721	-	-
University of Dundee	4	417	1	312	3	1,209
University of Exeter	14	2,511	2	527	1	989
Imperial College London	71	61,677	4	10,828	9	7,340
University College London	50	28,975	3	2,568	5	4,624
University of Glasgow	16	7,498	2	2,187	2	1,750
Sheffield Hallam University	3	789	1	67	1	168
University of Surrey	17	3,973	2	1,392	1	957

No Council member was involved in the approval of grants or awards to the organisation where he/she is a member of staff.

EPSRC operates a process of peer review of proposals for research grants, as part of which "Colleges", panels formed of senior members of the academic and industrial communities, evaluate grant proposals for technical merit and then propose a ranking for funding. EPSRC receives their recommendations but is not bound by them, taking as it does other significant factors into account, such as the availability of funds and Government policy. These panel members are not therefore regarded as Related Parties within the context of IAS 24.

EPSRC has adopted a Code of Practice for all those who assist the work of the Council, which embraces the 'Seven Principles of Public Life' drawn up by the Nolan Committee and endorsed by Parliament. This is designed to remove any staff member from any decision-making process under which he/she or any of his/her close family may benefit.

During the year, EPSRC identified those members of staff who could be regarded as being in positions of financial influence, and required a declaration from each of any financial transactions with EPSRC under which the staff member or a member of his/her immediate family was in receipt of a significant amount of money from EPSRC, and where the staff member was able to exercise any influence over the transaction.

Such a declaration was also required from members of Council, the Resource Audit Committee, the Technical Opportunities Panel, the Societal Issues Panel and the User Panel. A Council Members' Register of Interests is available for viewing on EPSRC's web site.

26. Derivatives and other Financial Instruments

As the cash requirements of EPSRC are met through Grant-in-Aid provided by the Department for Business, Innovation and Skills, financial instruments play a more limited role in creating and managing risk than would apply to a non-public sector body. The majority of financial instruments relate to contracts to buy non-financial items in line with EPSRCs expected purchase and usage requirements and therefore EPSRC is exposed to little credit, liquidity or market risk.

27. Losses and Special Payments

There were no losses or special payments that need to be reported.

28. Events after the Reporting Period

IAS 10 Events after the reporting period, require the disclosure of the date on which the financial statements were "authorised for issue" and who gave that authorisation. There were no significant events between the Statement of Financial Position date and 11 November 2011, the date when the Accounting Officer approved the accounts. The Financial Statements do not reflect events after this date.

Feedback

We welcome feedback on all our publications.
Comments on this Annual Report should be sent to:

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